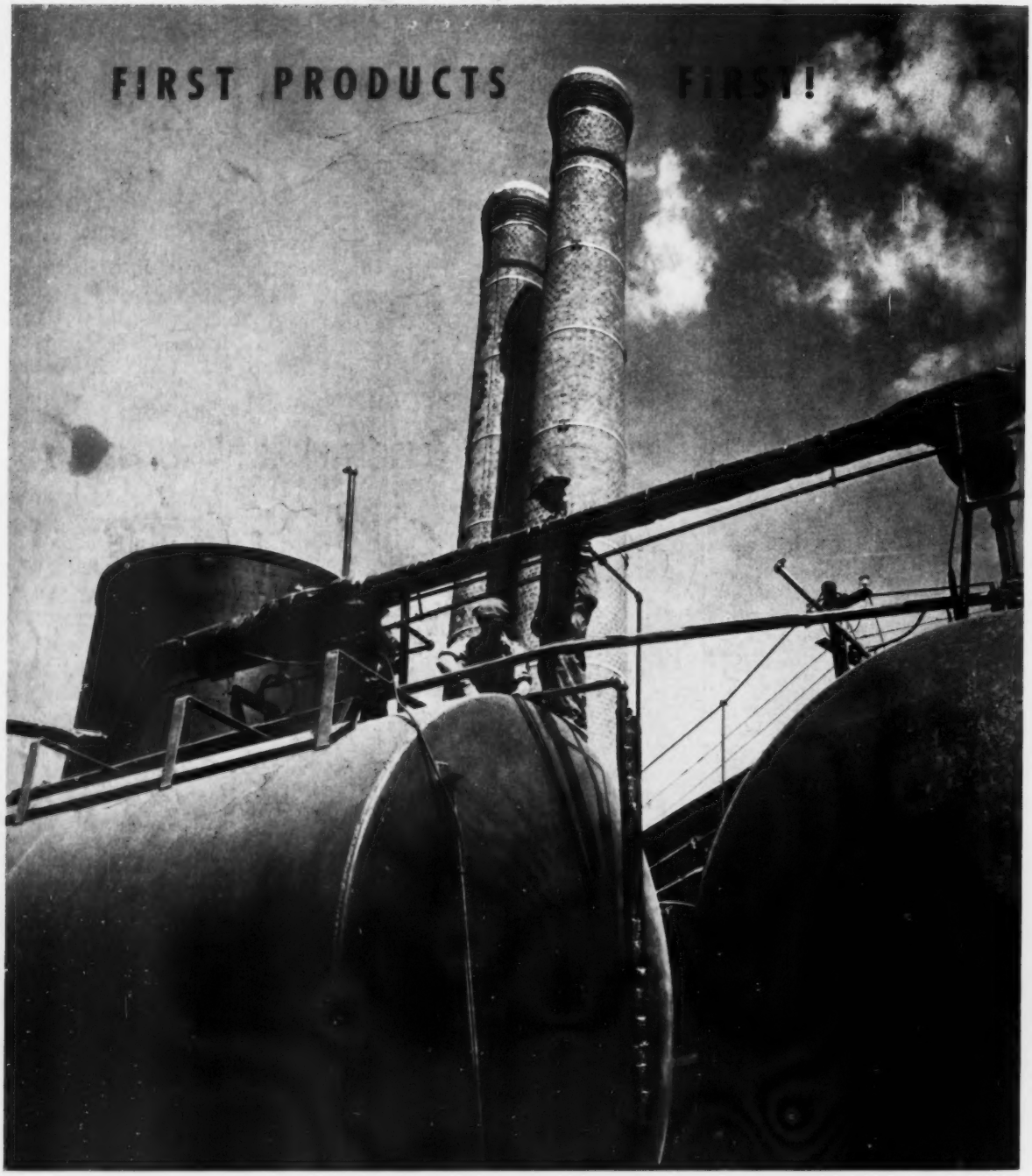
SOAP

APRIL 1937



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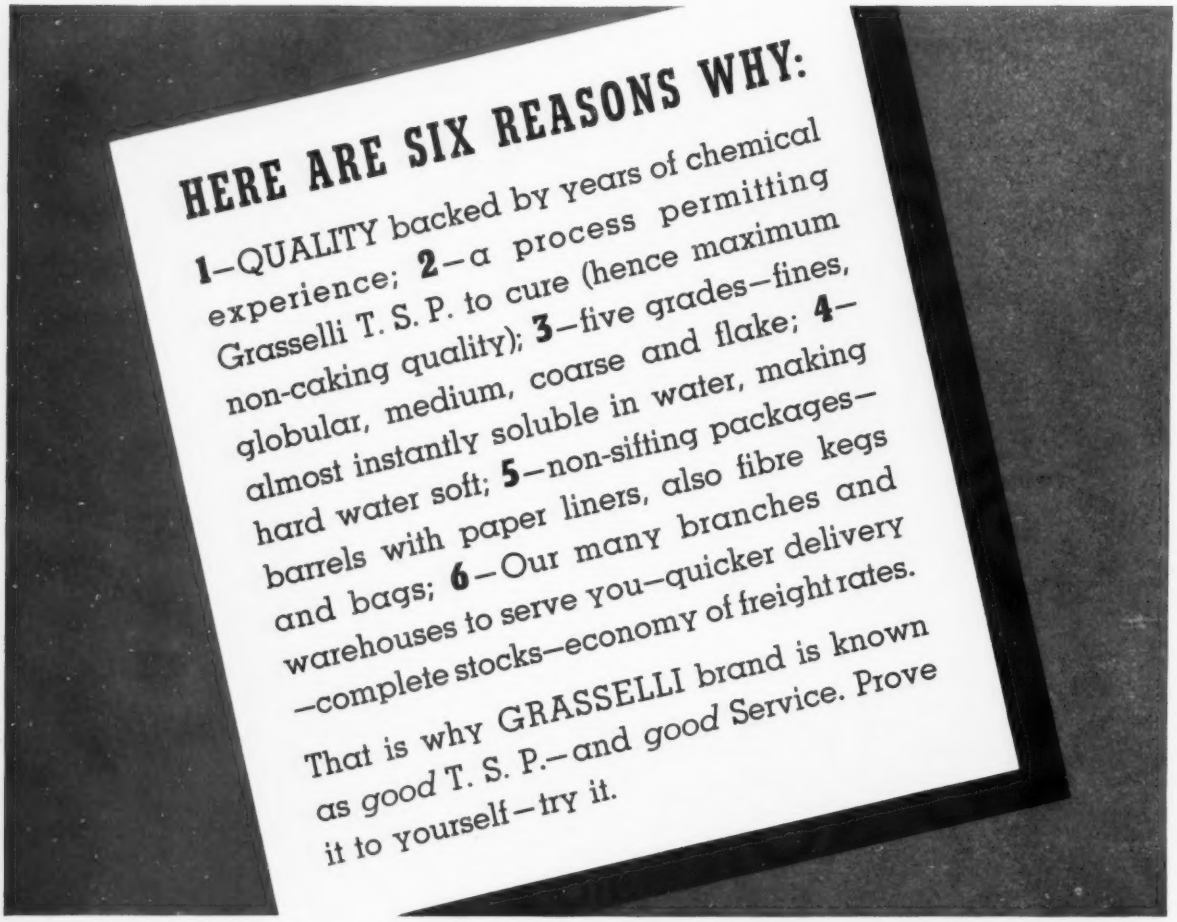

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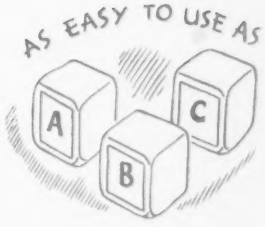

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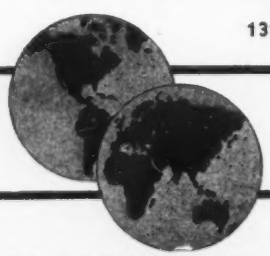

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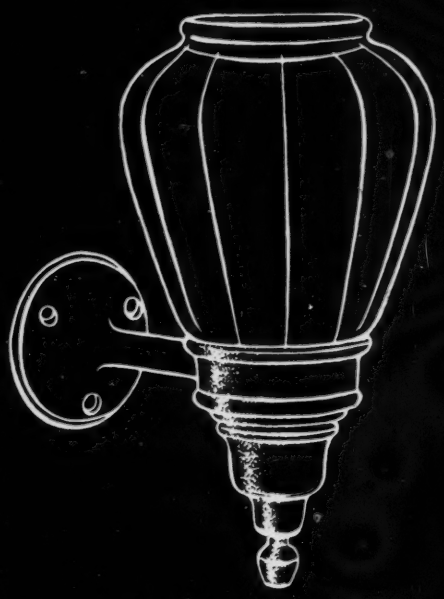

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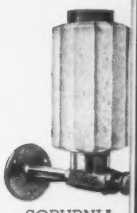

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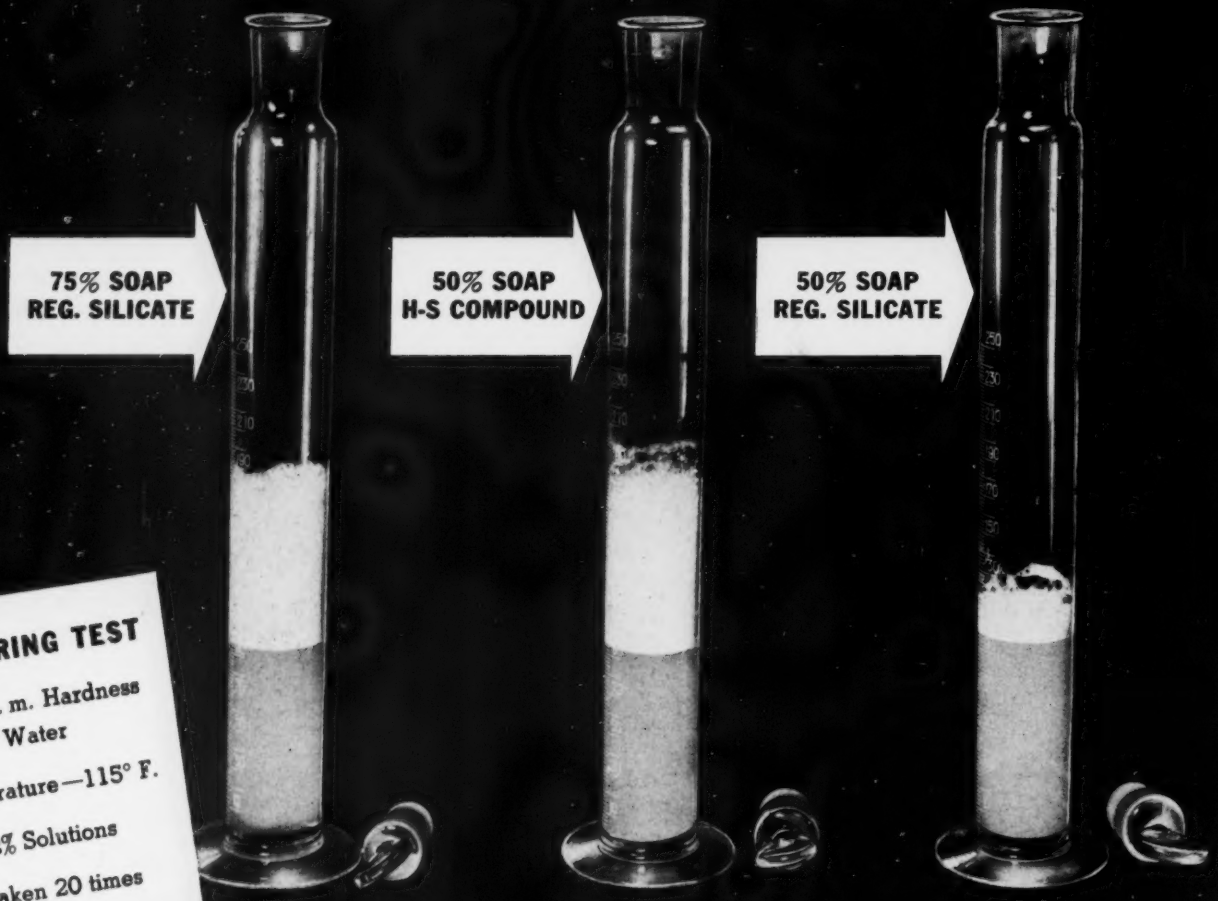

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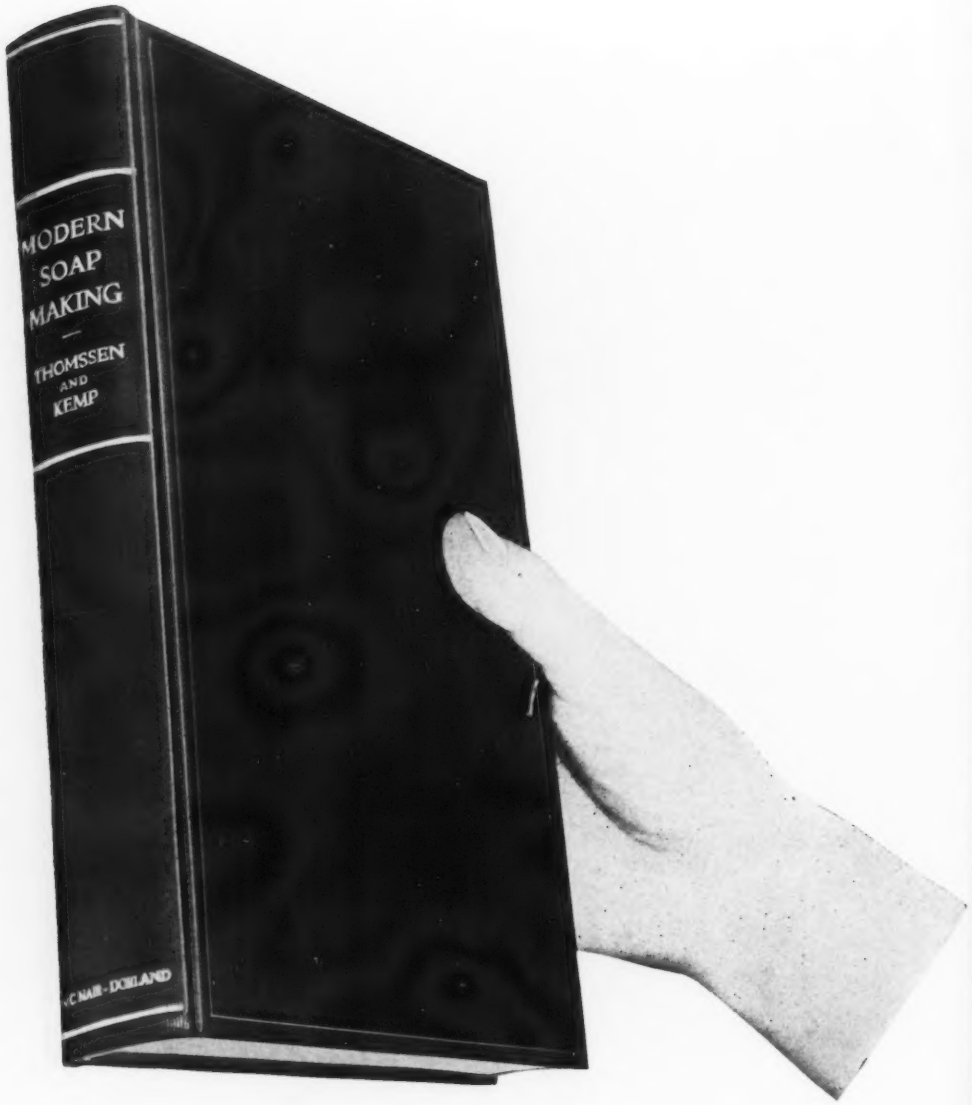

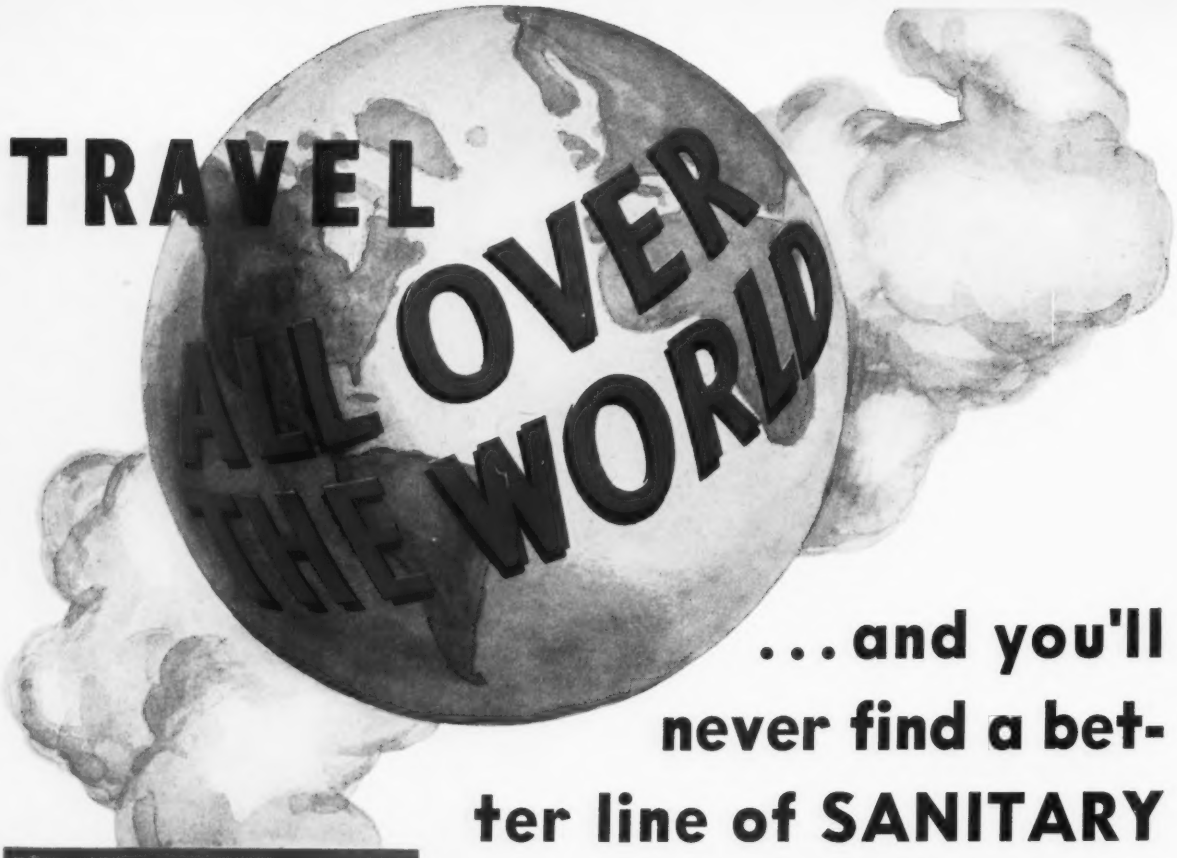

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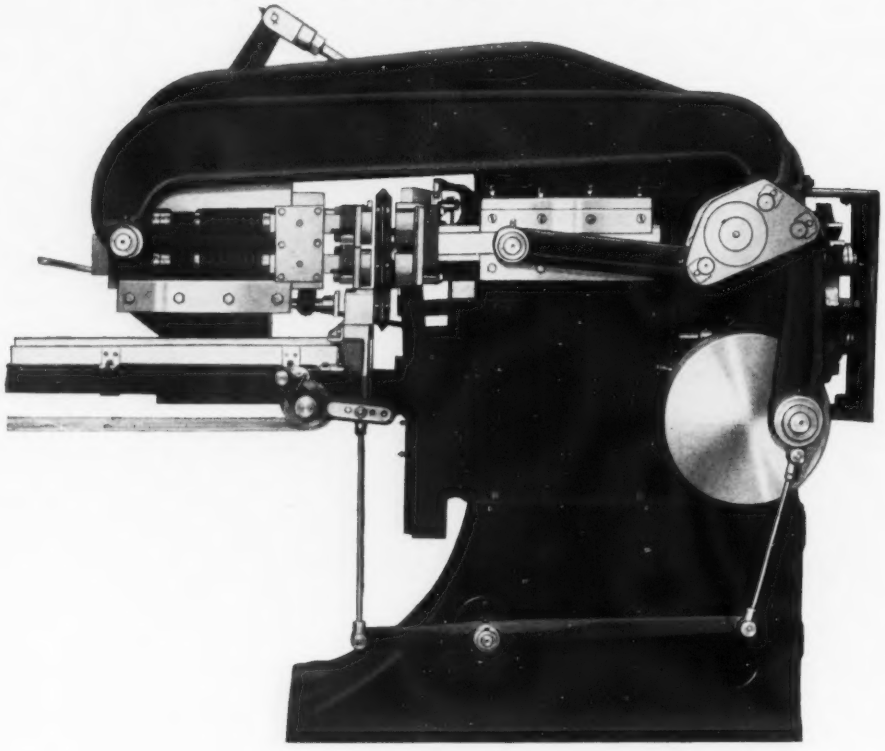

TYPE K

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The pressing mechanism is of the TOGGLE TYPE and produces a powerful and most efficient stroke for pressing soap. The DIES travel RAPIDLY toward the soap with a gradually slowing motion, which reaches a minimum when delivering the full power just when the dies are on the cake.

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As the editor sees it....

THAT the soap industry cannot go on indefinitely without feeling some of the effects of the wave of labor difficulties which is sweeping the country, is the opinion expressed by an executive in the industry. Already, a report from the Pacific Coast indicates that the American Federation of Labor there has organized the vegetable oil and soap plants in California and that wages have been advanced. From Chicago comes word that one of the smaller soap manufacturers there has recently been forced to increase wages as the result of a sit-down strike. This strike apparently was spontaneous within the plant and was not directed by any outside labor organizations. It is understood to have tied up the plant quite effectively for three days.

Although the number of employes in soap manufacture is exceedingly small compared to other industries and to the value of the goods which the soap industry produces, the fact remains that it is a prominent and important industry. Because its plants are widely separated throughout the country, labor leaders may delay in their efforts in this direction and tackle the easier problems first. But, sooner or later, an attempt to organize and unionize the industry will come,—and when it does come, the industry as a whole should know exactly what policy it intends to follow. To avoid conflict and costly shut-downs, an industry conference on this potential labor problem should be held now, preferably under the auspices of the trade association of the industry.

Before soap manufacturers are face to face with an acute labor problem, they should make their plans. Undoubtedly, most of the large firms already know what their policies will be in such a case. Nevertheless, a conference embracing all firms in the industry cannot help but thrash out something approximating a policy which should be of some value to the rank and file of the industry. There is no turning away from the labor problem. The time to face it is *now* while heads are cool and judgment is clear. If and when such a conference is called, every soaper in the country should without question attend.

NOT so long ago, a member of the British Parliament arose and asked why there had been some rather notable advances in the prices for soaps in the United Kingdom. He was told that prices had gone up because the cost of raw materials was much higher than it had been previously. The reply was a simple one and apparently satisfied the gentleman who made inquiry. If the government, however, had had the little matter of a stiff excise tax on raw materials to explain, it might not have been so simple.

And this brings up the question of why somebody does not ask on the floor of one of the houses of Congress why American soap prices are so much higher than they were. Maybe if the excise taxes on coconut oil, tallow, *et al*, were aired in Congress, the American public might have a clear insight into that part of its soap bill which is represented by taxes.

NO American consumer need fear that he will be handicapped by a shortage of glycerine. This assurance comes from leading producers. The situation in domestic glycerine stocks has improved during the past month, and although stocks are far from heavy, ample supplies exist to take care of normal consumption. Furthermore, production continues at the peak, and is keeping pace with the current heavy demand.

American glycerine producers are naturally anxious that any fears of consumers of an acute glycerine shortage be removed,—fears which have probably grown out of spoken and published stories of a scarcity. Dating back several years, the causes of the tight glycerine situation of the past twelve months,—foreign hoarding, decline in soap production in Europe, reduced output in the United States as a result of low prices several years back, and the great expansion in American consumer demand in 1936,—have to a great extent been offset by the heavy production in this country over the past year which was speeded

up to meet the increased demand. Today, American producers are turning out more glycerine than ever in the history of the industry,—assuring an adequate supply for all consumers.

In the world market, the price of American glycerine is lower than that abroad, but sufficiently high that foreign buyers cannot drain the American market of supplies to be hoarded in European tanks. Any lower price for glycerine in this country would undoubtedly mean a sharp increase in exports and tend to produce a genuine shortage of supplies available for American users. Until the situation abroad changes materially, or there is a marked decline in the domestic demand for glycerine, the price will probably continue to stand close to current levels.

THAT there is widespread bitterness among business men, particularly manufacturers, against the present administration in Washington, is not altogether surprising in view of the attitude and activities of the administration. Big business resents the avowed intention of the administration to clip its wings. But when we find much the same bitterness among smaller manufacturers, even among some of the smallest,—the very type which the government assures us it will protect and nurture,—we are given cause to stop and ponder.

Only last week, a small soap manufacturer, whose business dates back some twenty-five years, told us that he was about ready to quit and sell out to anybody who was dumb enough to buy his plant. He stated that he had studied the prospects for the small manufacturer over the next five years, and that he could see little to cheer about. He visioned the small manufacturer,—not only in the soap field, but others as well,—squeezed out of business by the tightening grip of government regulations and new laws, and weighed down by the constantly increased burden of taxes. He claimed that under the policies of the administration of the past four years, the small manufacturer,—and not the larger ones,—had taken the brunt of the beating, and predicted that over the next four years, it would be much the same, only more so. Hence, one of the livest and most progressive soap businesses in the country,—although indeed a small one,—is for sale.

When we study the laws, regulations, taxes, and proposed laws of the past four years, there is little wonder that this bitterness is not confined to the top flight manufacturers. It goes from the top to the bottom, and it is as understandable as ABC.

IF the aim of the government is to decentralize industrial power,—to clip the wings of big business, as has been mentioned,—the results are going to be exactly the opposite, if we may judge from the expressed opinion of other small manufacturers. Present government policy burdens the entire soap industry with a tax load which is far too heavy. Granted that the load falls proportionately upon all units of the industry, the large units are strong enough to carry their share for a longer time than most of the smaller companies. The chances of the larger firms surviving are distinctly better than are those of most of the small ones. From this angle, an expectation of a reduction in the ranks of small soapers, and a greater centralization of soap manufacture than ever before, is altogether logical.

THE Lea Bill which has to do with giving the Federal Trade Commission power to proceed against deceptive advertising, as an act calculated to deceive the public as well as being unfair competition, has created a very considerable stir in soap and allied trade circles. This bill plans to take right out of the jurisdiction of the Copeland Bill the power to control advertising which in the Copeland measure is vested with the Department of Agriculture. It plans to give the Federal Trade Commission a powerful weapon for use against certain advertisers, particularly in the field of foods, drugs, and cosmetics. If the Commission, according to the Lea Bill, deem that a product is dangerous to health, it has the power to enjoin the manufacturer until the matter is definitely settled.

All soaps, except those for which medicinal or curative properties are claimed, are exempted in the definition of cosmetics in this bill. Nevertheless, the power given to the Commission in this proposed law appears to us offhand somewhat greater than any which should be placed in the hands of a single government agency. However, changes in government methods and in the scope of governmental functions are taking place with such dizzy rapidity in Washington that they leave us completely befuddled. Maybe this is just another conservative piece of legislation which to our old-fashioned view point, appears quite radical.

SOAP PRESERVATIVES

Wider use of lower grade fats focuses attention on the application of antioxidants in soap manufacture

By Paul I. Smith

Nottingham, England

HIGH fat costs are forcing many soap manufacturers to use lower grade raw materials with the attendant increased risk of rancidity and discoloration in finished soaps. Because of the desire to use cheaper fats and to avoid the difficulties which go hand-in-hand with their use, greater attention has been given of late to antioxidants and other soap preservatives. The ability of certain chemicals to increase the stability and keeping qualities of soap is now quite widely recognized. Under present conditions, these chemicals take on added importance to the soap maker.

Soap preservatives are generally considered to make possible the use of lower grade fats, oils, and fatty acids, and to lessen the risk of cheap soaps becoming spotty or discolored when kept in stock for several months by the manufacturer, or what is far more likely, by the wholesaler or retailer. The use of preservatives tends to reduce the risk of returns and complaints, and to some extent to safeguard the business of small soapers. There is little doubt, at the same time, that the widening use of antioxidants in soap production encourages the employment of cheaper fats and so intensifies competition.

Preservatives vary a great deal in their properties, but it is generally agreed that they are, to a large degree, influenced by the condition of the soap. To insure uniformity of results, it is necessary for the manufacturer to use a chemical immune from attack by salt, free alkali, antiseptic bodies, perfumes, etc. Sodium thiosulfate, one of the best known and most economic preservatives, is attacked by certain essential oils and aromatic chemicals of an acidic nature. Oskar Hagen[1] showed that if a few cc. of clear almond oil (benzaldehyde, Acid Number 33.00) are well shaken with the same volume of 50 per cent solution of thiosulfate, sulphur is precipitated. Sodium sulfite, another more or less common preservative, causes discoloration and spottiness of soap containing traces of iron or copper impurities introduced through the use off-grade caustic, silicate, rosin, or salt. Metallic soaps due to corrosion of metal plant may also cause trouble.

It is also to be remembered that some preservatives have a definitely harmful action on the color, odor, and even the detergent efficiency of soaps when used above certain maximum concentrations. This varies according to the nature of the soap, and a safe concentration for boiled soaps, is not always advisable for semi-boiled or cold process soaps.

[1] *Seifen. Zeitung*, 524, 1933.

Before attempting to describe some of the preservatives available for use on an industrial scale, it is advisable to consider the most important causes of soap rancidity.

1. Use of low grade fats and off-grade basic chemicals, including employment of unsuitable superfatting agents and fillers.
2. Bad processing.
3. Use of plant liable to become corroded.
4. Unsuitable methods of storage and packaging.

Considering the first cause, it is well recognized in the trade that keen competition is forcing manufacturers, especially the smaller ones, to take greater risks in the use of low grade fats, although they realize that this may, and often does, introduce a serious hazard. Of course, the use of antioxidants to increase the induction period of these fats does to some extent lessen the risk of rancidity, but there is always present a grave danger of deterioration due to some unexpected cause. Long experience has proved that soaps made from inferior raw materials are far more liable to develop rancidity than those made from good fats. The conditions of manufacture of the oil may also induce rancid conditions. More than one worker has pointed out that warm-pressed oils often contain foreign matter which disturbs the stabil-

ity of soap. Cold pressed oils are a good deal safer to use, when and if available.

Off-grade caustic and other chemicals frequently contain traces of injurious metals which act as catalysts and accelerate the oxidation of such fatty acids and neutral fats as are present in the soap. It is false economy to use inferior chemicals as the difference in price between a good commercial grade and low one is not sufficient to justify the use of the latter.

Proper choice of super-fatting agents is important where they are used, and preference should be given to fats not liable to become rancid. Some writers recommend that these should all be non-saponifiable, but even this precaution will not always safeguard the soap as certain non-saponifiable fats are just as liable as others to deteriorate. Sometimes the use of soap "improvers" introduces a new and unexpected hazard. The addition of lecithin to toilet soap often means an increase in the free fat content of the soap. The oil present in lecithin is an unsaponified glyceride which, particularly in the case of soy bean lecithin, is liable to oxidize and induce rancidity in the soap.

Presence of Free Alkali

EXPERIENCE proves that a badly fitted soap is far more likely to deteriorate than one which has been properly made. Not only must the fat stock be completely saponified, but there must be present a slight excess of free alkali to prevent the hydrolysis of the soap. It has been pointed out that if the alkalinity of the kettle soap is adjusted to 0.1 per cent, the milled soap will contain 0.015 to 0.02 per cent free NaOH, and this is regarded as an optimum percentage. Even the presence of this optimum percentage will not, however, reduce the risk of rancidity if the soap has too high a free glyceride content, if metallic soaps are present, or if the fats used in soap making are unsuitable and inferior. In the writer's opinion, the latter is mostly responsible for the production of soaps possessing a tendency to oxidize.

The salt content of the soap is also important and there is good evidence that this electrolyte tends to retard rancidity changes. The buffer action of salt in decreasing the electrolytic dissociation of soap sols is also important as by its means the alkalinity or hydroxyl ion concentration is reduced. This means that even if the soap does contain a relatively high proportion of alkali, the presence of salt will tend to lessen the effect of such alkali in use. Alkali and salt contents are very closely associated. Karl Pfaff[2] said that electrolytes, such as common salt, tend to prevent rancidity. By salting out with a strong salt solution, a whiter and better soap is generally obtained, since the separation of the layers is sharper. A soap powder containing 1-1.5 per cent salt will remain white for twelve months, while the same soap containing less than 0.5 per cent salt may turn yellowish in three months. Salt content is influenced to some extent by choice of soap stock, some oils, such as palm and coconut, having a greater salt retention ability than others.

The writer does not consider that perfumes are important as contributory causes of rancidity. Many wrong conclusions have in the past been drawn from the action of certain aromatic chemicals on the oxidation of linseed oil. It should be pointed out that some of the perfumes, such as geraniol, citronellol, terpineol, benzoic esters, etc., responsible for accelerating the oxidation of linseed oil, inhibit the oxidation of free fatty acids in soa. Indeed, some of the higher esters of para-oxybenzoic acid are most effective as preservatives, although too expensive for general commercial use.

Little attention has thus far been paid to the effect of packaging and storage conditions on the stability of soap. Only the very highest quality paper should be used for wrapping as it is by no means unusual for the manufacturer to trace discoloration to contamination through the package. Vegetable parchment made from wood pulp contains on a dry basis 22 p.p.m. of copper and 50 p.p.m. of iron. Grease-proof paper and loaded vegetable parchment contain much larger quantities of metals. Either neutral or acid olive oil will dissolve traces of copper and iron from vegetable parchment. Oxidation products of wax, sometimes present in waxed papers, are also objectionable and induce auto-oxidation of the wrapped material.

Soap, either wrapped or unwrapped should not be exposed to light for any appreciable length of time. Ultra-violet light present in sunlight induces undesirable changes, especially if the soap is not particularly stable. Increased temperature speeds up deterioration, and it is necessary to reduce storage temperature to a safe level, say 30-40 deg. F. The resistance of the package to light is largely determined by its color. Dark colors are always preferable to light ones, and dark green, blue, brown and red are able to prevent the penetration of photo-chemical rays.

Choice of Preservative

THE choice of a suitable preservative for soap is by no means easy, even though there is no lack of these agents. It has been said that the ideal preservative for high class soap must possess many qualities.

1. It must not change the color or perfume of the soap, and so must give no color reaction with the iron-oxide combinations which are often present.
2. It must not make the soap hard or brittle.
3. It must not reduce the lathering power.
4. It must be neither volatile nor poisonous.
5. It must not react with fatty acids or alkalies.
6. It must be soluble in the fat or lye.
7. It must be effective in small quantities.

[2] *Riechstoff Indust. und Kosmetik*, 11, 71, 1936.

Spotting and darkening are sometimes prevented by the use of the correct preservative, although poor raw materials and improper handling are difficult to surmount.

8. It should not cost more than the soap.

There is, of course, no such thing as an ideal soap preservative, and the use of any particular chemical is attendant with certain drawbacks. These can, however, be reduced by taking precautions. One of the most necessary of these is to try out the proposed preservative on a small manufacturing scale for at least six months. The results of this preliminary work will indicate its usefulness, and give a valuable lead as to its practical value, not only during processing, but in the packed soap.

The following list of preservatives was suggested several years ago: 1. Borax, 2. Sodium thiosulfate, 3. Sodium hydrosulfite, 4. Sodium sulfite, 5. Salicylic acid, 6. Sodium salicylate, 7. Benzoic acid, 8. Sodium benzoate. This has been amplified by including stannous chloride, stannous oxide, sodium stannate, magnesium silicate, formalin para-formaldehyde, as well as many of the antioxidants used in the treatment of oils. Some manufacturers favor the preliminary treatment of oils with antioxidants rather than the addition of preservatives to the soap in the kettle or crutcher. It is claimed for the former method that it reduces any disposition of the soap to deteriorate on keeping.

The proportion of preservative used must necessarily be very low. In works practice, about 0.25 per cent thiosulfate in aqueous solution is recommended for semi-boiled and cold process soaps, but much greater quantities are sometimes recommended. Never more than 3.3 per cent of thiosulfate (crystallized) should be used; 2 per cent sodium sulfite (anhydrous); 3 per cent borax (crystallized); 2.5 per cent sodium benzoate. The optimum amount of stannous chloride to be used is about 0.2 per cent. Martin[3] recommended that the solution should be prepared by adding 25 parts of hot water gradually with stirring to 35 parts of stannous chloride crystals and prepared every day or every other day to avoid deposit of hydrated tin oxide. For toilet soaps, 6 ounces of the solution per 112 pounds of dried soap chips is used.

Use of Hydrosulfite

APART from the use of those preservatives mentioned, limited use is also made of derivatives of polyhydric phenols containing hydroxyl groups together with ethyl ether, propenyl and ethyl groups. Soaps can also be hydrogenated, deodorized and bleached by means of nascent hydrogen produced by the action of zinc or aluminum powder or flake when mixed with soaps during saponification. The writer considers sodium hydrosulfite an excellent preservative, as well as

[3] *Soap, Perf. and Cos. Trade Rev.*, 7, No. 6, 1934.

(*Turn to Page* 30)

BATH SALTS—

OPINION has been expressed that the market for bath salts is dead, and should be accorded a decent burial. It has been stated that the stupidity and greed of manufacturers have quite effectively killed the demand for bath salts, and that bath oils, bath milk, and other bath preparations have risen to take their place. When some of the various products which in earlier years masqueraded as bath salts are considered, it is certainly remarkable if there is even a vestige of consumer acceptance left. Too many were true to name,—common salt,—in fact, *very* common salt.

Ten years ago, the market was glutted with ice cream salt and even crushed rock salt, carelessly tinted and sparingly scented with very ordinary perfumes. Mostly, they depended for sales appeal upon the utility containers in which they were packed, such as candy jars, vases, and the like. Their water softening or other useful qualities were just about nil. Only last week, I happened to see on a druggist's shelf a few candy jars of bath salt which I had produced over eleven years ago. I noted without great pride that it was rock salt, poorly scented and tinted, packed in an iridescent jar made by a lamp chimney manufacturer with top sealed with colored wax, bedecked with silk floss and a gold and yellow embossed label. If criticism is due the manufacturer for this atrocity, more severe criticism is due the druggist for allowing it to stand on his shelves for so long without closing it out, or throwing it out.

At the present time, certain bath preparations such as the bath oils are rather expensive luxuries, a discussion of which will not be gone into here. Others, such as bath salts, have aesthetic appeal and serve the very useful purpose of softening the water and making the bath more refreshing. They tie in beautifully with toilet soaps, aid their detergent action, and help them to lather more readily and profusely. But in this connection, the question arises as to just how much of a market remains for bath salts.

As for consumer acceptance, a national survey indicated that bath

. . . is the market dead?

Ralph H. Auch
American Products Company

salts are to be found in 24.7 per cent of the American homes. It disclosed about one-third of the flappers add them to their baths. Young matrons get a bit careless or cannot crowd them into the family budget, so only one in five buys them. In the age groups over 30, the percentage goes up again and hovers right around 25 per cent. They pay from 25 cents to $1.00 for them and buy between four and five packages per year.

Another smaller survey shows only 16.2 per cent use bath salts. This figure, incidentally, is a higher percentage in the same survey than use such items as eye shadow, hair dyes, hair tonics, facial packs, skin tonics, tissue creams, acne, astringent and bleach creams, each of which is aggressively and successfully merchandised. In this survey, brands that enjoy 1 per cent or more of the call are ten in number. The five leading brands in point of choice enjoy 16.0; 7.7; 5.1; 3.4 and 3.3 per cent respectively of the sales. There is not a soap maker among these five. Unusual is the fact that the leader in sales is an English manufacturer.

This may be a sorry commentary indeed on American merchandising methods and business acumen. As an outsider rather than one in the know, the thought is advanced that American merchandisers make exaggerated claims and promises impossible of fulfillment. The English manufacturer is content to build up consumer acceptance by outward evidence of quality and intimation of the same in his sales promotion. Witness that he presents his offering in a wide-mouth glass-stoppered container while the American manufacturers have been known to go down as a decorated sifter top

can suggestive of a five-cent abrasive cleaner.

VARIOUS salts are used, both singly and in admixture, as a bath salt base. As mentioned earlier, ice cream salt and crushed or riced rock salt were quite widely employed, but they fell into disuse. Salt, that is, sodium chloride is convenient to scent and tint since it is anhydrous, only slightly hygroscopic and difficulty although highly soluble which makes it easy to tint with an aqueous solution of color. The crystals being cubical and available in any desired mesh of reasonably uniform size make an inviting *looking* product. Salt is valueless as a water softener, of course, and if freely used, tends to retard the lathering of the soap. On the other hand, it is supposed to impart a rather refreshing effect on the skin.

Sodium carbonate finds some application both here and abroad. The monohydrate is the salt used, of course. It makes up attractively and is stable but is much too harsh for regular use. Tri-sodium phosphate may be used in either the fines, globular or flake form. It is difficult to tint and its pH in solution of the usual concentration is too high to be used alone. Then, too, its solution in the bath is far from clear, but this lack of clarity hides more or less the undissolved portion. Di-sodium phosphate is perhaps more suitable for all but the hardest waters, but it is appreciably higher in cost.

Borax is finding constantly wider application. It tints readily and has little tendency to affect adversely perfume compounds. It is available in various granulations from powdered on up. The 6-mesh that as received looks quite like whole rice makes an attractive appearance on packaging in any of a number of tints. Borax is quite mild in the bath. The only disadvantage is its difficult and sparing solubility. In the coarse granulation, as the crystals are washed white, the deception—that is if it is a deception,—that they are only surface tinted, is uncovered to the user.

Sodium sesqui-carbonate is mild and a satisfactory water softener. Being a definite chemical compound, it does not change in composition or physical appearance whether packed in a sealed container or a package that is not air-tight. The fine, needle-like sparkling white crystals make it about the only base that can go to market untinted. It also lends itself to trick packs, — that is irregular layers of several different tints, including untinted, in one transparent container. Two or more colors of other salts of coarser granulation in a single jar usually run together in transit and the unique effect is ruined. Sesqui-carbonate is quickly and completely soluble in water so the dye solution used should be alcoholic.

Tetra sodium pyro-phosphate has unusual properties that may well not be overlooked. It lends itself to admixture in low percentages with other salts. It prevents hard bath water from clouding up badly as it is softened. As soap is freely used much less "ring" is formed in the tub. On the other hand, it is rather dangerous in that it makes the bottom of the tub slicker still, particularly if not completely dissolved.

This about covers the ingredients except for medicinal, oxygenated and effervescent bath salts the following ingredients find limited application: magnesium sulfate, sodium sulfate, sodium perborate, sodium bicarbonate and tartaric acid. These are pretty highly specialized as is the use of the starches.

THE easy way, of course, of tinting and scenting bath salts is to use the ready prepared bases combining odor and color as offered by many essential oil houses. There are two drawbacks to this procedure, however. First, for example, the lavender perfume compounds are usually tinted lavender, violets are blue, roses are pink and pines are olive. In other words, if one desires a certain odor, he must take the corresponding color offered whether he likes it or not, or else have something especially prepared combining the desired color and odor. The consumption of many of the small manufacturers does not warrant this procedure.

Second, the perfume oil and the color in these bases is in a fixed ratio. If it is desired to scent highly a coarse bath crystal, which requires relatively little color, it is likely to look like the coloring job has been overdone. On the other hand, if it is desired or if cost permits only light scenting, a fine bath crystal that requires relatively much color, either the tint is just off-white or is insufficient to permit uniform distribution.

All this brings up another point of how published formulas can indicate definite quantities of color and of odor. As suggested above, the granulation as well as the desired intensity determines the quantity of color required since the crystals are only surface tinted. Obviously, the larger the crystal the less color it requires. A quantity of perfume oil that is readily adsorbed and remaining as a surface coating on a finely divided bath crystal may leave a non-absorbent coarse crystal damp or oily and uninviting with a tendency to adhere to the walls of the container.

Some crystals are more readily tinted than others. If a mixture of an easily tinted and a difficult-to-tint salt is used, the color solution should be mixed with the difficult-to-tint salt. On subsequent addition of the readily tinted salt, it will pick up sufficient color with little added mixing.

For example sodium sesqui-carbonate is easily tinted whereas tri-sodium phosphate fines are relatively difficult to tint. Accordingly, if a mixture of these two salts is employed, the latter should be mixed with the color solution then the former added and the mixing continued to obtain uniformity.

From a perusal of available literature, it might be concluded that tinting is a difficult job. The usual recommendation is either spraying on of a dye solution or immersing the crystals in a tank containing the dye solution, draining and subsequently drying them. Another recommended method is to dissolve both perfume

and color in alcohol then spray the mixture on and thoroughly mixing it through the salt. Then the alcohol is allowed to evaporate (and dissipate more or less of the perfume) before packaging.

All these methods are needlessly tedious. A simple method that has never yet failed to give satisfactory results is to do the job in a mixer with vertical blades such as a pony, brighton or other change can mixer. A concentrated filtered solution of color, either aqueous or alcoholic, dependent on the water solubility of the salt is added while the mixer is in motion, and after the various salts are all added, the perfume, cut with sufficient alcohol to make it water thin, is added.

The type of mixer employing horizontal agitation works all right. However, the tumbling of the material which this type of agitation involves, causes more or less breaking of the crystals, dependent upon their hardness. After packaging, the dust thus formed settles to the bottom of the containers to mar their appearance.

If the color is not only to tint the salt but the bath water as well, this trick works satisfactorily. Obviously if sufficient color solution is employed for a few grams of the salt to tint a full tub of water, the shade of the crystals will be uninvitingly intense. This may be obviated by tinting the crystals to the desired shade with a concentrated solution of color then adding the perfume and finally mixing in sufficient dry color, or colors, to tint the bath water. The color in powdered form may be added as such or cut in a pot or ball mill or in a mortar with inert material such as chalk, talc or calcium sulfate to facilitate even distribution. An advantage of this method is that the average user, who doubtless thinks the crystals are colored through and through cannot observe the crystals, particularly if they are coarse ones, washed colorless before complete solution is effected. Another stunt that is practical but has never been observed, might be accomplished by this procedure. The crystals may be tinted a dainty pink, orchid or other pleasing shade and then on their use in the tub or lavatory they turn the water a briny blue or green.

As for the colors themselves they must be light and alkali fast. Most soap colors will be found satisfactory. If the crystals are difficultly soluble, a filtered aqueous solution of color may be employed. Otherwise it is well to use a filtered alcoholic solution of color. Number 40 or any of the other authorized specially denatured alcohols may be used as an economy measure. As for concentration of color, a 1 per cent filtered solution is convenient. However, this figure should be adjusted up if the mix gets needlessly damp, or down if the quantity of liquid is too small to permit of uniform distribution.

As is the case with colors, odors that are suitable for soap will usually be found to stand up. The quantity of perfume employed may be anything from 1/10th to 1 per cent up. Since the perfume compound is dispersed as a thin film on the surface of the crystals it is well to add an appreciable quantity of the proper resinous fixitive for any given odor. This is doubly true if the product is offered in a cloth bag or other packets that are not air-tight. Much space has been given to tinting and scenting but aside from the selection of a suitable base this is about all there is to bath salts manufacture.

Endless formulae in light of the above could obviously be given but none will be indulged. It appears that everyone has his own ideas in the matter. The desired formula need not be arrived at by trial and error alone, as one can more quickly gratify his whims by augmenting his practical tests with pH determinations, making up the mixture of salts in usual bath concentration (about .0265 per cent) and noting the effect on the lathers of both bar and liquid soaps. By no means should the tendency to form, or more accurately, retard the formation of the "ring in the tub" be overlooked. Someday perhaps various formulations may be offered under the same label for sale in the different geographical locations, a milder mix in soft water than in hard water areas.

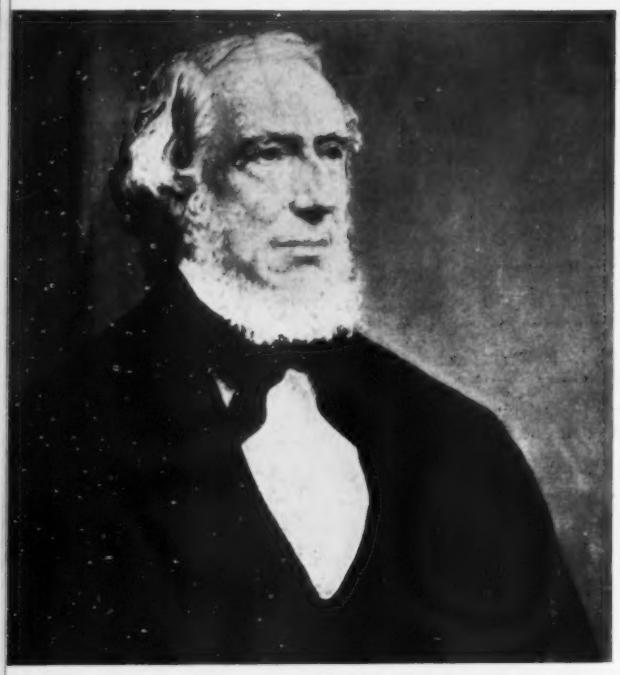
THE usual effervescent bath salts depend upon the liberation of carbon dioxide as double decomposition takes place between sodium bicarbonate and tartaric acid. Premature reaction between the carbonate and acid is prevented by mechanically coating the particles of each with corn starch, quite in the manner of baking powder manufacture. Ordinary corn starch runs about 12 per cent moisture and is unsuitable so the 7½ per cent should be employed, — in fact, the payment of the slight premium for 5 per cent moisture starch is usually warranted. Tartaric enjoys the call over citric acid, both because of its lower cost and its being non-hygroscopic.

The acid and the alkaline salts should not be too finely granulated or the starch figure must be quite high to insure stability. Instead of straight sodium bicarbonate as the alkaline salt, sesqui-carbonate may be included in the formula so the bath becomes not only refreshing but the water is softened as well. Obviously the color must be in alcoholic solution to prevent premature reaction.

In formulation calculated equivalents need not be employed, in fact, the alkaline salt, or salts, should be present in excess. In manufacture, the starch should be intimately mixed with the acid salt to coat it mechanically before the alkaline salt, or salts, are added.

Bath tablets are usually made of effervescent salts since on compressing, non-reacting salts become too difficultly soluble. It is possible to make a "still" or non-effervescent tablet that will disintegrate rapidly and satisfactorily even in relatively cold water by the incorporation of starch in the tablet granulation. This is, of course, is not new as it is the aspirin tablet manufacturer's stunt to speed disintegration. However, cloudiness due to the starch, is not visible in the stomach whereas it is in the bath.

(Turn to Page 69)



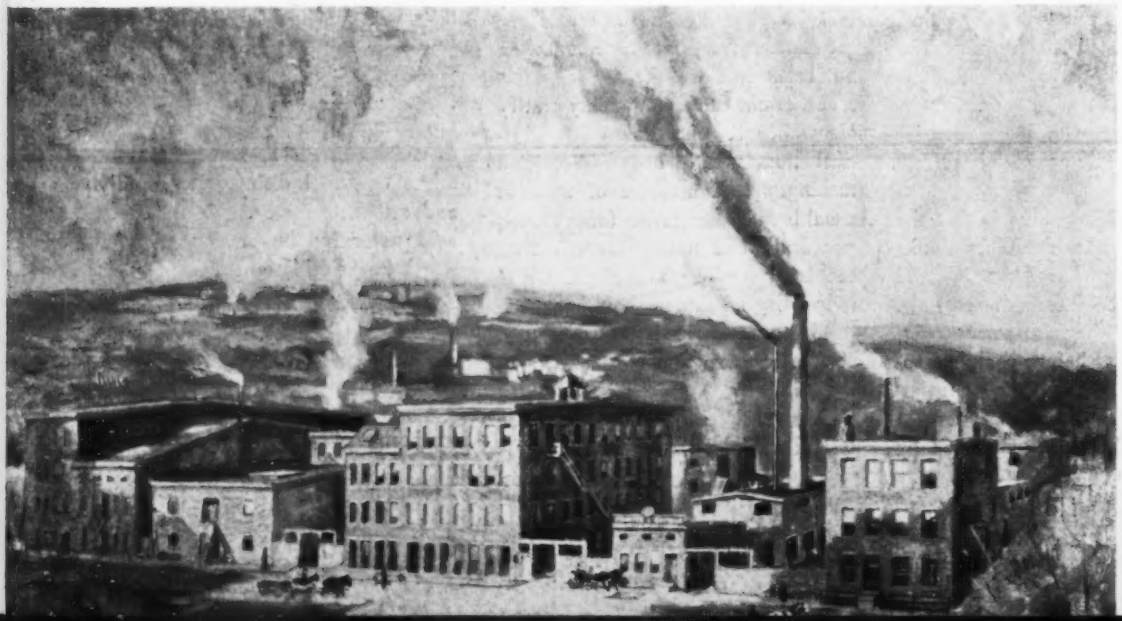
WILLIAM PROCTER
Co-founder

PROCTER

PROCTER & GAMBLE CO., Cincinnati, is currently celebrating its 100th anniversary, the history of the firm dating back to 1837 when William Procter and James Gamble entered into a partnership agreement and organized the firm of Procter & Gamble to manufacture soap and candles. As a matter of fact, while the firm itself dates from October 31, 1837, the first two partners had been active in the soap and candle business before that time.

William Procter, eldest son of Thomas and Ann Procter, was born in Orleton, Herefordshire, England, December 7, 1801. He came to Cincinnati in 1832—and engaged in the manufacture of candles. James Gamble, eldest son of George and Mary Gamble, was born at the Graan, near

Reproduction of the first Procter & Gamble plant in the heart of Cincinnati, from an old painting. Candles were as important as soap in the early days.

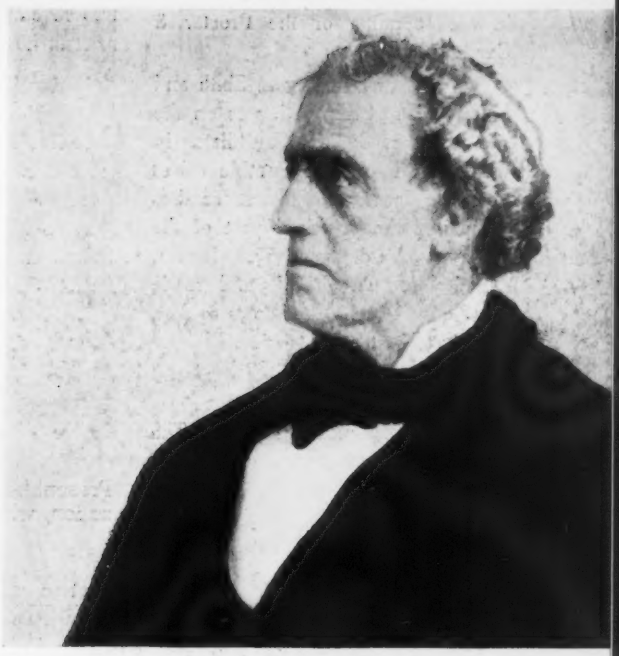


& GAMBLE

1837 - 1937

Ennis Kellen, Ireland, April 3, 1803. He came to Cincinnati in 1819, thirteen years before his future partner, and engaged in the manufacture of soap.

The two young men married sisters in 1833, the daughters of Alexander and Phoebe Norris. William Procter married Olivia Norris, and James Gamble, her sister, Elizabeth Ann Norris. This linking of the Procter and Gamble families in marriage was followed four years later by a joint business relationship



JAMES GAMBLE
Co-founder

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Air view of the present main plant of Procter & Gamble at Ivorydale, Ohio,—the largest soap plant in the Western Hemisphere.

in the founding of the Procter & Gamble firm.

The first factory at Sixth and Main streets, Cincinnati, was on the site of the Gwynne Building, in which the Procter & Gamble offices now are located. At first candles comprised the principal part of the business. All of the soap was brown, called "German Soap," and made chiefly from red oil. It was sold in bulk, like butter.

But then came white soap and from that time the fortunes of the company advanced rapidly. The product had no name other than "White Soap" until, as it is related, a member of the firm heard the reading of this psalm in church:

"All thy garments smell of myrrh and aloes and cassia out of ivory palaces whereby they have made thee glad."

The trade name, "Ivory," is said to date from this inspiration. The first cake of "Ivory" was sold in October, 1879, and six years later the company erected the first building of the present tremendous factory.

The firm was not incorporated until 1890, when papers were filed under the laws of the State of New Jersey. William Alexander Procter, son of William and Olivia Procter, was elected the first president of the corporation. He served until 1907, when at his death he was succeeded by his son, William Cooper Procter. The corporation had been reincorporated under the laws of Ohio in 1905.

The next president, and the present active head of the company, was Richard Redwood Deupree, elected in 1930 at the time of the retirement of William Cooper Procter. Colonel Procter became chairman of the board of directors, in which post he served until his death in May, 1934.

Today, Procter & Gamble Co. has grown to be the largest soap manufacturer in America, with plants in ten cities from coast to coast. The parent plant is located at Ivorydale, a suburb of Cincinnati. It occupies one hundred and seventy acres, and the value of the products leaving its

R. R. DEUPREE

Present head of the P. & G. organization, who was elected president in 1930.

gates annually is estimated at $40,000,000.

Procter & Gamble has pioneered in establishing amicable working arrangements between employer and employee, and today it has in effect the most complete industrial relations program of any industry in the country. This includes a profit-sharing, pension, and insurance plan, and a plan whereby employees are guaranteed year-round employment regardless of seasonal fluctuations in business.

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Soap Preservatives

(*From Page* 23)

a useful bleach. Unlike some other chemicals it does not absorb alkali and so upset the fit of the soap when added to the kettle. In the case of ordinary well-boiled soaps, sodium hydrosulfite can be added direct to the fitted soap and stirred well into the mass so that uniform distribution is assured. Approximately 0.1 per cent will be sufficient, and this amount is able to exercise both preservative and bleaching action. This salt is particularly valuable when dark colored oils are used. For soft white soaps, 0.2 per cent is necessary and this must be well crutched in by machine.

The successful preservation of soap depends not only on the choice of a suitable additive, but also on the way in which it is added to the soap. Easily soluble salts, such as sodium thiosulfate should be added in aqueous solution, and others, like sodium sulfite, should be added through a sieve. The anhydrous salt should be used in the latter case. Mechanical mixing is essential to obtain the best results, other methods are not so successful and there is a risk of lumps forming.

The plant itself may also contribute to the failure of preservatives to fulfill their function. Iron, copper or brass equipment can cause bad discoloration of soap containing sulfite, sodium hydrosulfite and thiosulfate due to the formation of metallic sulfides. Apart from the dark color of these bodies, they act as catalysts and accelerate changes within the soap. Borax on the other hand is very resistant to metals and their salts. Hagen found that borax filled soaps stand up to 6 hours irradiation under the quartz lamp without developing the slightest rancidity. They darken slightly on the side exposed to the ultra-violet rays. Borax filled soaps are highly resistant to copper, and show no effects either from metal or solution after 11 hours irradiation. The preservative action of borax is not, however, as good as sulfite. When this chemical is used, the soap has a brilliant white color and will stand up to 25 hours exposure to the quartz lamp.

As mentioned previously, there is no such thing as an ideal preservative, but there are a number of serviceable chemicals able to give satisfaction if properly handled by the soaper. To do this he must first of all be fully acquainted with their properties, and willing to work out the details of their use to meet his own requirements. Some manufacturers who have experimented with sodium thiosulfate, the cheapest of all preservatives, claim that it is not only satisfactory when used at low concentrations, but readily adaptable.

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The import duties levied by Costa Rica on laundry and scouring soaps which expired Sept. 1 after being in effect for five years have been renewed.

Photo by Cie. Africaine des Plants a Parfum

GERANIUM OIL

By Harry J. Monroe

AS the franc goes, so goes geranium,—accounting for the fact that geranium prices today to the American buyer are well under their levels of six months ago, 1-1 consequently making the oil of greater interest to the soaper. Devaluation of the French franc late last year raised the cost to American importers in terms of the devaluated French currency, but the net result has been to lower the price in terms of dollars, which after all, is the only consideration which affects the American buyer.

Immediately following the announcement of the devaluation of the French franc last fall, geranium oil shipment prices were raised by primary market suppliers as much as forty francs per kilo. Even at these higher quotations in terms of francs, the cost to the American importer was still lower by some forty to fifty cents per pound, because of the revised rates of exchange. Since that first advance, the price of geranium oil in terms of francs has dropped moderately so that at the moment the price in terms of the devalued franc is only twenty-five to thirty francs per kilo higher than before devaluation. This means that current quotations in terms of dollars are seventy to eighty cents per pound lower than they were six months ago.

The geranium oil market has held to a comparatively even tenor over recent years, and the shift in value of the French franc marks the first important change in geranium oil prices for some years. The lowered cost to the American buyer, if maintained, gives added interest in soap perfuming, and may well tend to stimulate consumption.

Between 100 and 150 tons of geranium oil of the type used for perfuming soap are produced annually in the two main producing centers—the Island of Reunion, and northern Africa. Three-fourths or more of this quantity is produced in Reunion. The other types of geranium on the market are the Turkish oil, or palma rosa oil; geranium du Pays, or French geranium; and Spanish geranium. Lately attempts have also been made to cultivate the geranium plant for oil in British East Africa and Russia.

Geranium oil is obtained mainly from the leaves of various species of *Pelargonium*, an herb of the *N.O. Geraniaceae*, but sometimes the small twigs are also distilled. This plant came originally from South Africa, traveled from there to Reunion Island, and then to France.

Eventually, about forty years ago, slips of the French variety were planted in Algeria, and cultivation has since spread to Morocco.

About 30,000 acres are devoted to the geranium crop in the Island of Reunion. This island was formerly named Bourbon, but at the time of the French Revolution, 1789, all names reminding of the overthrown dynasty were replaced by other names. However, the Bourbon name still clings to the oil. The cultivation of geranium plants is the second largest agricultural enterprise in Reunion, the sugar industry being more important. Originally the crop was grown chiefly in the southern and southwestern parts of the island, but in recent years it has been grown more and more in some northern regions. The plant grows best at altitudes of 1,300 to 2,000 feet.

The geranium plant grows on the island all year around and is cut generally three times a year. Reunion Island has been called the ideal place for the growth of geranium plants, as no parasites have ever attacked them there, although typhoons have been known to ruin the crop. The plant is reproduced from slips which are grown on the island, and is cultivated chiefly by natives. Cultivation methods are said to be at their caprice. The natives also distill most of the oil, usually in portable stills which eliminate the necessity for transportation of the leaves. Very small yields are obtained from each plant and these are bought by brokers who sell to exporters. These exporters filter the oil, classify it according to standard grades, and pack it in casks or metal drums for shipment.

A high rhodinol content is typical of Reunion geranium oils. Consequently these oils are used for the extraction of rhodinol for incorporation in rose compounds. The oil itself has a rather disagreeable odor. This changes to a pleasant odor, however, when the oil is added in small percentages to soaps and other toilet preparations. This type of geranium oil is stable in soaps and cosmetics and does not tend to decompose on standing. The rhodinol content of Bourbon geranium is really the heart of the oil.

AFRICAN oil is similar to Bourbon, having a typical rosy character which makes these oils so valuable. The choice of one oil or the other for perfuming soaps rests upon individual preferences entirely. An average of about thirty tons per year of African oil has been produced for the past five years or so. Between 1926 and 1928 as much as 140 tons was produced annually. The plant is grown in Algeria and Morocco chiefly by French and Spanish farmers, but also by large estates.

About nine-tenths of the total production in Algeria comes from the western half of the plains of Mitidja, bordering Morocco. Geranium plants are strong and grow rapidly, reaching a height of about three feet. They grow all year round, but there are only two crops, the main one in May and a smaller one in September. The larger estates are usually equipped with their own stills. The plants grown by the smaller growers are usually transported to the estates for distillation. Geranium is always distilled right where it is produced, it being very important for the oil to be distilled from freshly cut plants.

In Algeria and Morocco there are a few large producers, while most of the smaller farmers are grouped in two cooperatives. It is curious that in this area plants do not live at present for more than seven to ten years. Some years ago the life span was from twelve to fifteen years. The reason for this short life is not apparent inasmuch as there does not seem to be any disease which attacks the plants or shortens their life. There is a possibility that the African climate may account for this change in the plants. African geranium oil, however, has a very special note which does not appear capable of reproduction when the plant is grown in other places. It is used in fine oriental bouquets as well as rose type odors.

FRENCH geranium oil, which is distilled in and near Grasse, is employed particularly in fine perfuming materials. It has a very delicate and persistent odor, characteristic of the rose. It is produced with the utmost care, the herbs being planted each year and carefully cultivated. The crop is harvested only once a year. The plants yield the most oil when distilled in the spring, but give a better quality oil after the drying effect of the summer heat. This is the most expensive of all the geranium oils and its price precludes its use in soaps or ordinary perfumes.

Spanish oil, like the French, is too expensive to be used for ordinary perfuming purposes and is less stable than the Bourbon and African types. Its chief advantage lies in the leafy effect it produces in fancy rose odors.

Turkish geranium oil, or palma rosa oil, is not very popular and is used mainly in preparations where a heavy Bulgarian type rose odor is wanted. It consists almost wholly of geraniol, and is used for the manufacture of geraniol.

Exports of Geranium Oil from Reunion Island and Africa Since 1910. (In metric tons.)

	Reunion	*African*		*Reunion*	*African*
1910	61	34	1922	74	14
1911	45	29	1923	81	42
1912	38	25	1924	111	58
1913	42	32	1925	117	67
1914	70	51	1926	127	144
1915	87	73	1927	77	87
1916	79	69	1928	79	143
1917	72	33	1929	82	67
1918	13	23	1930	73	96
1919	79	35	1931	84	44
1920	62	15	1932	79	30
1921	74	14			

There is a likelihood that more of these types of oils would be used if more were produced. The quantities of them, however, which appear on the market are extremely small.

The efforts which are being made to cultivate the geranium plant in other regions have centered in British East Africa, Belgian and French Congo, and along the Black Sea Coast of Russia. The production of none of these oils, however, has reached the commercial stage. All the oils appear to be different in odor and composition from the Bourbon and African oils which are considered the standard types. The new oils appear to lack the pronounced rose note of these others.

The high ground of the British colonies of Kenya and Uganda offers bright possibilities for the cultivation of geranium plants, it is reported. Both the climate and the soil are said to be favorable. Overproduction in these regions is already being feared should the industry be developed seriously. As yet, however, there does not seem to be any danger of immediate competition for the producers of the standard types.

The development of geranium cultivation holds a prominent place in the perfuming materials progress being made in Soviet Russia. In spite of the many difficulties which had to be overcome, the development has taken place quite rapidly. Among these difficulties were lack of accurate data, trained workers, storage systems, and the like. The variety of plant cultivated is the *Pelargonium roseum, Willd.* It is grown as an annual plant. Increasing the percentage of spring planting alleviates the problem of winter storage. As more geranium is being planted, the demand for it is becoming greater and greater.

The properties of a number of geranium oils are given in the table below.

ONE main reason why geranium is valuable to the soap maker is that it does not discolor soap. Consequently it can be used in all types of white toilet soaps. Furthermore, as has been mentioned, geranium oil is completely stable, even in the case of soaps which are high in free alkali.

The exact amount of any perfume which is used in soaps is largely dependent upon individual fancies. Tastes and appreciation of odors vary in different parts of the world, with different peoples as well as with individuals. Whereas in the United States the amount of perfuming material used in soap makes up about one-half to one per cent—rarely over two per cent—of the total composition, in France an average of three per cent and sometimes even seven per cent of aromatic materials are used. In South American and, generally speaking, all Latin countries, soaps are perfumed with a minimum of one per cent and usually three per cent of essential oils and other aromatic ingredients.

Generally the main use for geranium in soap is to impart the odor of the rose. Geranium in soap usually blends nicely with other oils. It can be mixed with any number of other perfuming materials with a minimum of trouble. The quantity of other materials with which it is blended is wholly a matter of taste. It requires no fixatives when it is used in soaps, as it has its own fixative properties. Geranium oils when used in combination with other odors often add properties of strength and duration. For example, a good lavender compound should carry three or five per cent of geranium oil, and a good chypre odor needs five to ten per cent of geranium experts claim.

Certain geranium oils are adulterated considerably. This is due to the comparatively low cost of geraniol and citronellol and various fractions of these substances, and to the frequent demands of consumers for lower prices. It is unquestionably true that the difference in price encountered in pure geranium rather than a blended oil is well made up by its body, strength, and rose odor value. In the long run the pure oil is more economical.

Rhodinol and geraniol are among the most valuable products derived from geranium oil. Rhodinol seems to be an impure compound, the commercial type being probably a mixture of geraniol and citronellol. Possibly it is a mixture of two isomers, rhodinol and citronellol. At any rate, rhodinol can be used in all geranium and rose preparations. It is particularly valuable for use in soaps. It is stated that the odor value of the best and most expensive samples approximates more nearly that of the rose than any other single perfume.

Geraniol is a colorless liquid with a sweet delicate rose odor. It occurs free and as an ester in a number of natural products. In addition to being found in geranium oil, it is also present in the oils obtained from the rose, champaca, ginger-grass, linaloe, and citronella. Geraniols are usually sold in three qualities, known as No. 1, the highest quality, which is obtained from palma rosa oil; No. 2, which is obtained from Java citronella oil; and No. 3, which comes from Ceylon citronella. It is used as the basis of all types of artificial

(*Turn to Page 69*)

	African	*Bourbon*	*New Types* *Sample No. 1*	*Sample No. 2*
Sp. g.—15.5° C.	0.892-0.904	0.888-0.8965	0.9055	0.9008
Opt. rotation—20° C.	—7° to —11.5°	—8° to —14°	—9.2°*	—9.3°*
Refractive index	1.4650-1.4720	1.4620-1.4677	1.4721	1.4705
Acid value	1.5-10	1.5-10	7.3	6.3
Ester value	40-70	50-78	71.8	63.4
Esters, expressed as geranyl tiglate per cent	———	———	30.3	26.7
Solubility in 70 per cent alcohol at 15.5° C.	Soluble in 2.5-3.0 volumes	Soluble in 2.5-3.0 volumes	Soluble in 2.1-2.2 volumes	

* At 23° C.

New Products

Redesigned package for Silver Dust in orange, white, and blue. Design by O'Neill & Babbitt, New York. Now in two new sizes, medium and large oversize. Shipping container appearing like a giant box of Silver Dust to match. Silver Dust is made by Hecker Products Corp., New York.

The new Gillette Brushless Shaving Cream, put out by the Boston firm of razor fame, Gillette Safety Razor Company. At present, the sale of the product is limited to the State of Massachusetts.

Conti Castile Shampoo and the famous Conti Castile Soap appear in new dress. Packages in green and white. The castile soap is now a milled soap, materially improving appearance and texture. By Conti Products Corp. of New York.

and

Packages

A new product and new packages by O'Cedar of Chicago, added to their polish line, — O'Cedar No Rubbing Cream Polish. Package designed by Harry H. Farrell. Bottle and closure manufactured by Hazel-Atlas. Label by Fred Klein Company.

Supreme Lilac Bath Soap, one of a new line of fancy toilet soaps by the Allen B. Wrisley Company of Chicago. Twelve bars in three sizes to the package with small cakes in pull-out compartment.

United Drug Company markets a new fancy toilet soap through the Rexall Stores, — Savon du Gardenia, a white milled circular cake in printed cellophane with the box covered with laminated cellophane to match.

NEWS . . . . . .

Fire at Boston Soap

The plant of Boston Soap Co. at Ipswich, Mass., was severely damaged in a recent fire. The plant was destroyed in a fire about a year ago and had been rebuilt.

Take Over Morton Plant

The soap plant of David Morton & Sons, Ltd., Hamilton, Ontario, Canada, has just been taken over by Victor Soaps, Ltd. The transfer became effective April 1. C. R. McArthur is general manager of the new concern.

Soap Standard Group Meets

A meeting of Committee D-12 of the American Society for Testing Materials, in charge of the formulation of a set of standard specifications for soaps and detergents, was held March 30 at the Hotel New Yorker. Harry P. Trevithick, general chairman of the committee, presided. Several sub-committee meetings were held, as well as a full meeting of the entire committee.

Perfumers Spring Party

The annual spring party of the Chicago Perfumery, Soap and Extract Association will be held at the Knickerbocker Hotel, Chicago, April 8th. The party, which will feature a night in Monte Carlo, has created an unusual amount of interest. An invitation has been extended to the members of the Chicago Drug and Chemical Association.

Organize Indian Soap Concern

The Punjab Toilet & Chemical Works has recently been organized in Lahore, India, to manufacture soaps, toilet preparations, perfumes, insecticides, disinfectants, etc. Until the formation of this new concern there had been no manufacturer of these products in the Punjab Province. The managing director is R. N. Mehta who has spent considerable time in the study of the subject both in India and abroad. The plant was designed by Mr. Mehta in consultation with German engineers. It will shortly be ready to go into production.

TGA Convention May 25-27

The annual meeting of the Toilet Goods Association will be held this year at the Biltmore Hotel, New York, May 25-27. Charles E. Kelly, Hagerty Bros., New York, heads the entertainment committee for the affair. Other committee members include: A. C. Burgund of Carr Lowrey Glass Co.; W. D. Barry of Mallinckrodt Chemical Works; Charles Fischbeck of Charles Fischbeck Co.; B. J. Gogarty of Commercial Solvents Corp.; W. E. Klaas of Chase Brass Co.; M. Lemmermeyer of Aromatic Products, Inc.; W. P. Murray of Continental Can Co.; L. R. Root of Scoville Manufacturing Co.; and Karl Voss of Karl Voss Corp.

C-P-P Canada Sales Up

Sales of the C-P-P Canadian subsidiary, Colgate-Palmolive-Peet Co., Ltd., Toronto, are reported to be at an all time peak by G. H. Sloan, general sales manager. The number of employees at the Toronto plant is now 20 per cent higher than in 1929 and the plant is running night and day. According to Mr. Sloan, an addition to the plant will be opened shortly which will add 50 per cent to capacity. Ralph Hart, until recently Toronto district manager, has been advanced to the foreign department and will shortly leave Toronto.

Flory Joins Admiracion

Hubert H. Flory, former advertising manager of Dickson and Eddy, has joined Admiracion Laboratories, Inc., Harrison, N. J., to handle sales promotion activity. The advertising appropriation for "Admiracion" shampoo in 1937 will total as much as the amount spent during the last three years.

Offers "Bab-O" Premium

B. T. Babbitt, Inc., New York, is featuring a carving set as a premium in connection with sale of its "Bab-O" in the Oakland, Calif., district. The carving set is given for 25c and a "Bab-O" label.

F.T.C. Limits "Tarson" Claims

Gramercy Chemical Co., New York, trading as Tarson Chemical Co., has recently signed a U.S. Federal Trade Commission stipulation, agreeing to cease representing that its product "Tarson" is absolutely harmless to the hands and finest fabrics and may be used in washing woolens or silks; that it has no equal for removing odors and stains from clothing or for washing dishes, and that it is the greatest water softener and ten times quicker than soap. The company admitted the cleaning powder may be used safely in washing or cleaning washable fabrics, but cannot be recommended for all fabrics, especially silks and woolens.

Cite Soap Lake Prods.

Soap Lake Products Corp., Seattle, Wash., has been charged by the U. S. Federal Trade Commission with unfair competition in the sale of packaged mineral salts. An examination was scheduled to take place March 22 before Henry M. White, F.T.C. trial examiner.

Strike at Fitzpatrick Bros.

A two-day "sit-down" strike at the Chicago plant of Fitzpatrick Bros., soap manufacturers, was successfully terminated by the management on March 12. Involved in the strike were some two hundred employees, all of whom were retained following settlement. Termination of the strike followed an agreement by the management to give wage increases ranging from five to fifteen per cent. Wage earners in the lower brackets got the biggest increases. Organization of the Fitzpatrick workers was effected by the employees themselves, the CIO having no connection with the movement.

Italian Olive Oil Shortage

Italy is confronted with a serious olive oil shortage, according to a report from U. S. Consul Lester L. Schnare in Milan. The small crop of olives harvested in Italy last year is reported as the chief reason for the shortage. Contributing causes are the smaller olive crops in other Mediterranean countries. The 1936 olive crop in Italy was officially estimated to be 27 per cent below that of 1935. This would mean a production of only about 162,000 short tons of olive oil, compared with 225,000 tons in 1935-36 and with the annual average of 224,000 tons during the six years ending with 1934-35. A number of measures have been adopted to offset the shortage, the principal one being the imposition of an export tax of $3.60 per 100 pounds on all olive oil exports. Wholesale and retail prices also have been fixed by the Italian government.

Lever Profits Increase

A marked improvement is shown in the annual reports of United Africa Co., Niger Co., and African and Eastern Trade Corp., members of the Unilever group. Earnings of United Africa Co. amounted to £1,848,584 or $9,242,920. The dividend is being raised by 2 per cent to 10 per cent. Revenue of Niger Co. amounted to £1,535,887 or $7,679,435. The dividend is being maintained at 10 per cent. Income of African and Eastern for the year ended February 28 rose by £29,592 to £170,866 ($854,330). A dividend of 12 per cent (against 10 per cent) is being paid on the preferred ordinary shares and a dividend of 7½ per cent on the ordinary shares—the first since 1927.

H. G. Mackelcan Advanced

Innis, Speiden & Co., New York, have announced the election of H. G. Mackelcan as secretary of the

company, succeeding C. L. Speiden whose retirement was announced recently. Mr. Mackelcan has been with the company for 29 years, having joined the organization first as a junior clerk. He was made general sales manager of the company in 1926, and in 1927 was elected vice-president in charge of sales.

Advise English Soap Tax

The repeal of all existing legislation on the subject of medicine stamp duties is recommended by the Select Committee of the House of Commons set up to consider the taxation of soaps, toilet preparations and cosmetics advertised as remedial. The committee, whose report has just been issued, recommends a new schedule of dutiable articles advertised as remedial, and adds that if it is found difficult to distinguish between cosmetics which claim to be remedial and those which do not, the taxation of all cosmetics might receive consideration.

Subject to certain exemptions, the committee recommends that the following articles shall be liable to a duty based on the retail selling price:—Preparations or substances of any sort, including medicines, medicants, medicated articles, drugs, fumigants, inhalants, disinfectants, antiseptics, soaps, tooth pastes and powders, mouth washes, toilet preparations and cosmetics to be used to be applied externally, internally or otherwise as medicines or medicaments, held out, or advertised in any way whatever for the prevention, cure, or relief of any human ailment, defect, disorder, condition, or habit or for the treatment of any part of the human body or for the protection or maintenance of bodily health.

Await Oil Case Decision

The Haskins Brothers and Cincinnati Soap Company cases, involving the constitutionality of the U. S. tax on Philippine coconut oil, were expected to be reached on the U. S. Supreme Court calendar early in April. An earlier date for the decision had been anticipated, but delay was encountered.

Dismiss Sterling Complaint

The U. S. Federal Trade Commission has dismissed its complaint against Sterling Products, Inc., New York, charging a violation of the Clayton Act in its acquisition of the capital stock of a competitor, R. L. Watkins Co., New York. Evidence presented to the commission indicated that there was no restraint of trade or substantial lessening of competition resulting from the stock purchase.

Vail Talks In Montreal

Industrial uses of soluble silicates were described by James G. Vail, chemical director of Philadelphia Quartz, Philadelphia, in an address before the Montreal section of the Society of Chemical Industry in the Windsor Hotel, Montreal, March 19.

Wrisley Trailer Sales Room

Shown here is the interior of Allen B. Wrisley Company's new orange and black, streamlined trailer which is touring four southern states this winter. Wrisley executives have long felt that trailers offered an excellent answer to the problem of bringing their complete line before buyers, particularly those that never visit New York or Chicago sales rooms, and determined to try out the idea in one territory. Although it is too early to tell just how the plan will work, first returns have been very satisfactory. H. R. Owens, who is in charge of the travelling display, reports that the reaction among retailers has been very favorable. The trailer simplifies the salesmen's job because it does away with the need for bulky sample cases and displays the merchandise to better advantage.

British Soap Wages Up

Announcement has been made at Port Sunlight by Lever Brothers, and by their associated enterprises in the soap trade in Britain of a wage increase: — "As from Monday, April 5, 1937, wages of certain classes of soap works employees will be increased by four shillings a week for adult males of 21 years of age and over and two shillings a week for adult females of 18 years and over, with proportionate increases to juniors. Further details will be given in due course.

"The effect of the increases will be to make the minimum wage for an adult male soap worker in England £3 and for an adult female soap worker 32 shillings for a week of five days. The five-day week was adopted by Lever Brothers and their associated companies on January 1, 1936. Approximately 5,000 employees at Port Sunlight and Warrington will be affected by the increases."

Seek Oil Tariff Change

Crushers of oil seeds on the Pacific Coast, including nine large plants in the Los Angeles area, have organized the National Institute of Oil Seed Products, whose object is to obtain by group action from Congress a change in the differential between oil and oil seed tariffs, it was announced recently by H. E. Emory of Los Angeles, vice-president of the group. A flat duty of $40 a ton on oil seeds was imposed during the closing days of the last session of Congress, Emory pointed out, and a tax of 4½ cents per pound on the oil was passed at the same time, with the result that oil seeds cannot now be crushed at a profit in United States in competition with imported oil. The cost of producing oil from seeds is now from $10 to $20 per ton higher than the price of imported oil, after the duty on seeds is taken into consideration.

Wants Soap Agency

A concern in Hato Rey, Porto Rico, is interested in securing an exclusive agency for sale of American soaps. Interested parties may communicate through the U. S. Bureau of Foreign & Domestic Commerce, mentioning inquiry No. 2690.

Soap Employment Up

The index of employment in the soap industry, compiled by the U. S. Dept. of Labor, registered 110.0 for February, 1937, as compared with 100.9 in January, and 94.7 for February, 1936. The pay-roll index for January, 1937, was 124.0, as compared with 107.4 for January and 92.7 for February, 1936. These figures are all based on the 3-year average for 1923-1925 as 100.

British Soaper Pays 40%

John Knight, Ltd., British soap company controlled by Lever Brothers, announces a net profit for 1936 of £227,159, against £246,455 for 1935. Crediting £20,000 for contingencies and £139,562 brought forward, there is a total of £386,722 available for distribution. A dividend of 40 per cent is again being paid on the ordinary capital.

New Camay Contest

Procter & Gamble Co. is offering twenty-five complete trailer outfits as prizes in a contest featuring "Camay" toilet soap. The contest runs through May 1 and is being featured in newspapers, magazines and the company's radio broadcasts.

Miracle Prods. Moves

Miracle Products Co., Newark, N. J., manufacturers of soaps and sanitary products, moved March 23 to new quarters at 53 Demarest St. They were formerly located at 287 Sherman Ave., Newark, N. J.

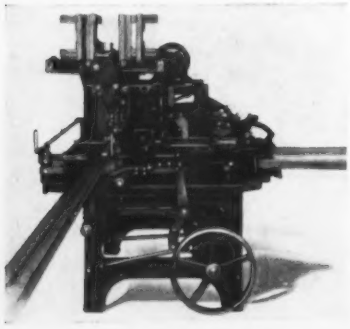
Practically all the leading toilet soaps in the country...

. . . are wrapped on the Model S wrapping Machine. It gives soap manufacturers distinctive wrapping that is ***uniformly neat and attractive***— at the lowest possible cost of operation.

The Model S is adjustable for different sizes. It handles practically any type of wrapping material, and is adaptable to many styles of wrapping. Can be equipped to insert cardboard or circular between inner and outer wrapper, if desired.

A machine with such versatility opens new avenues of style and individuality for every soap manufacturer.

The speed of the Model S (150 cakes per minute) saves labor cost. Its mechanical efficiency avoids waste of wrapping materials. Its compact construction saves floor space in your plant.



Modern High Speed Soap Wrapping Machine

Special Machines

In addition to the Model S, we have built special machines to meet special requirements. When you have a packaging problem, avail yourself of our long experience in soap wrapping, and our complete facilities. Consult our nearest office.

PACKAGE MACHINERY COMPANY, Springfield, Mass.

NEW YORK CHICAGO CLEVELAND LOS ANGELES

Mexico, D. F., Apartado 2303 Peterborough, England: Baker Perkins, Ltd.

Melbourne, Australia: Baker Perkins, Pty., Ltd.

PACKAGE MACHINERY COMPANY

Over a Quarter Billion Packages per day are wrapped on our Machines

To Auction Pine Tree Prods

All property and property rights of Pine Tree Products Co., Newport, N. H., except cash and accounts receivable, will be sold at auction in Concord, N. H., April 22. All trade marks owned by the company will be included in the sale which cannot be made for a sum less than $1,000. The sale will be made subject to any right which Allen B. Wrisley Distributing Co. may have under contracts of theirs with Pine Tree Products Co. to manufacture and sell a limited quantity of "Pine Tree Soap" on account of indebtedness of Pine Tree Products Co. to them under said contracts. The terms of sale will be cash at the time of sale to be deposited with the trustee of the estate of Pine Tree Products Co. B. M. Jacobs, Newport, N. H., is trustee.

About Wood Fatty Acids

Joseph M. Wafer of the Industrial Chemical Sales Division of the West Virginia Pulp & Paper Co., New York, manufacturers of refined tall oil under the name of "Indusoil," comments on the article on "Fatty Acids from Pine Wood" which was published in the March issue of SOAP. Mr. Wafer states:

"The article by James A. Wallach showing the availability of Fatty Acids from Pine Wood is very interesting, and if the paper industry were ever to get on the basis of recovering in the near future the 200,000,000 pounds of crude material and were to refine this, another aspect that may be of interest to the soap industry would be the possibility of a supply of rosin.

"This crude material, when distilled to the extent of the availability in the future, i.e., 200,000,000 pounds, would yield approximately 70,000,000 pounds of rosin. Compared to the availability of rosin from other sources, of course, it doesn't represent a large percentage, but based on the report of F. P. Veitch of the Bureau of Chemistry and Soils, for the crop year April 1st, 1935 to March 31st, 1936, there was shown that the soap industry consumed 278,750—500 gross pound barrels of rosin yearly—which will be the equivalent of, roughly, 140,000,000 pounds. Thus you can see that as a source of supply for the soap industry this would have a very important check in advancing prices on rosin."

Soap Meeting—April 22

A general meeting of the soap industry has been called for April 22 by the Association of American Soap and Glycerine Producers, to be held at the Blackstone Hotel, Chicago, at 1:45 p.m. The entire industry has been invited to participate, regardless of membership or non-membership in the association. Problems involved in taxation, legislation and labor developments are scheduled to come before the meeting.

New Bobrick Soap Dispensers

Bobrick Manufacturing Co., Los Angeles and New York, has just announced three new soap dispenser models for 1937. The new models are more attractive and modern in their lines, and also incorporate a number of mechanical improvements, as compared with previous styles. Among the new mechanical features in the model "A" valve. The spout now delivers the soap in the palm of the hand rather than between the fingers.

Offer New Shaving Soap

According to the London "News Chronicle," a new method of dealing with the problem of the rusty razor blade that has not been dried after use has been introduced by British soap makers. By adding potassium chromate to the normal composition of the soap, experimenters claim that difficulty from rusty blades is eliminated.

A. E. Macadam & Co., Brooklyn, have just announced a new line of soap powders, liquid soaps, etc.

Asplundh Named PPG Director

At a recent directors' meeting of Pittsburgh Plate Glass Co. held in New York on March 3, E. T. Asplundh, assistant to vice-president

of Columbia Chemical Division of Pittsburgh Plate Glass Co., was elected a director to fill the place made vacant by the death of Edward Pitcairn. Mr. Asplundh makes his headquarters at Barberton, Ohio.

Woodbury Sets Prices

Jergens-Woodbury Sales Corp. of California has just put into effect a maintained resale price policy under the California Fair Trade Act, covering its complete line of products. This is said to be the first soap company in the country to establish "stop" prices on its complete line of products under a fair trade law. On its facial soap, the firm set minimum prices of 9c per cake, three for 25c, and 90c a dozen.

Move Columbia Offices

The executive offices of Columbia Alkali Corp. have just been moved from 30 Rockefeller Plaza, New York, to Barberton, Ohio, where the main plant of the company is located. C. I. Galliher and J. C. Leppart of the New York staff have already been transferred to Barberton which will be their future headquarters. Eli Winkler, executive vice-president, and S. T. Shoneman remain in New York.

3 New Models for 1937 by Bobrick

Bobrick packs 31 years of manufacturing, research and sincere study into the 1937 SOP-O-ZON dispensers. Combining thoroughly-tested new and original features with all previous sound Bobrick developments, the 1937 models merit attention because of increased serviceability, improved mechanical excellence and striking streamlined beauty. ★ You cannot truly visualize the actual models from photographic reproductions. Why not write immediately for *returnable* sample? Operate Model "A" valve (described on opposite page) *yourself*. See the spout actually deliver the soap in the *palm* of your hand—*where it belongs*—not between your fingers!

NO PRICE INCREASE! Write for further details. Better still—*send today for returnable sample of one or more models.*

MODEL NO. 7-A SOP-O-ZON DISPENSER

Streamlined in the modern trend of designing. Body a solid bronze casting, chromium plated. Lock Top. Indestructible glass jar firmly cemented into body. Outstanding in conservative beauty and good taste of its lines. *No bracket screws exposed.* Removable valve.

MODEL NO. 10-A SOP-O-ZON DISPENSER

Heavy pressed steel body. All seams electrically welded. Coated inside and out with vitreous enamel. Beautiful white finish—same as your wash basin. Easy to keep clean. Practically indestructible. Back of bronze valve casting *flush with the wall*, therefore ALL operating pressure is against the wall, *not against the dispenser body*. Capacity 1 pint. Lock Top Chromium plated.

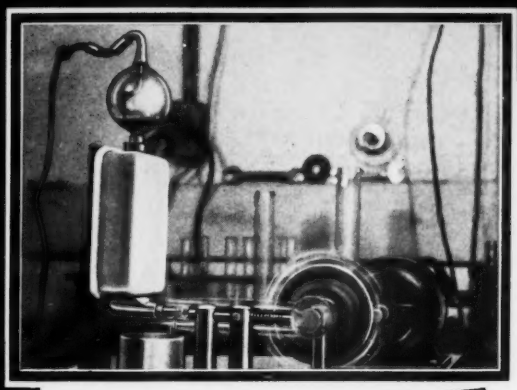
MODEL NO. 12-A SOP-O-ZON DISPENSER

Construction and design similar to No. 10-A, *except capacity is over one quart*. Ideal dispenser for public places where there is heavy traffic.

BOBRICK MANUFACTURING CORPORATION

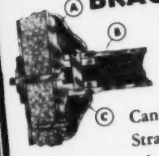
NEW YORK CITY—215 Fourth Ave. **LOS ANGELES, 111-117 Garey St.**

Exclusive SOP-O-ZON REG. U.S. PATENT OFFICE features



"KNOCK-KNOCK" 12,800 TIMES AN HOUR!

● Two years research and study have gone into Model "A" valve—to produce the best possible liquid soap dispenser. Finest bronze, nickel silver, stainless steel—each perfect for its particular function—are used in its construction. Every part has had to stand 100 test-hours on this machine, where *piston hammers plunger of dispenser* 12,800 *times per hour.* This equals seven years of hardest usage, conservatively estimated.



BRACKET wall plate (A) is first screwed to wall. Bracket of dispenser (B) is then fastened to it. Chromium plated flange (C) covers all screws, completing streamlined effect. Easy to clean. Cannot be stolen. *Simplest installation. . . .* Straight sides on wall plate make it easy to line up. Standardized holes—dispenser may be installed in place of old one without drilling new wall holes. . . . *Only dispenser easily and properly installed on plaster or hollow tile walls with toggle bolt and without use of a rosette.*

NO. 10 VALVE

A bronze casting fastened permanently to the bottom of the body houses the valve. Back of this casting *bears solidly against the wall.* All pressure of operating the valve is on the casting against the wall, thus relieving all pressure from the body. NO chance of hard usage chipping or cracking the enamel. Body presents unbroken surface clear of obstruction. Easy to keep clean.

DISPENSES SOAP IN PALM OF HAND

In operating Model "A" Valve, soap is delivered *into the palm of the hand*—right where it belongs. The spout, being attached to the piston, moves in and out *with hand.* Soap is dispensed on the *inward* stroke. No splashing. Economical because the soap will not run through the fingers. Outward stroke *draws the soap back* into the cylinder and cleans the spout. No drip—no soap left in the spout to dry up.

GLASS JAR
Practically Unbreakable

Glass jars in SOP-O-ZON Dispensers are not ordinary glass jars. They are especially designed so that all stresses are relieved. Illustrations shows full weight of the back wheel of a car *resting on the shoulder*—the weakest part of any bottle or jar. SOP-O-ZON jars are practically indestructible. Will not break when hit unless hit very hard with metal tool.

LOCK TOP

Models 7-A, 10-A and 12-A dispensers are equipped with the famous SOP-O-ZON "LOCK TOP"—an exclusive SOP-O-ZON feature. Easy to open with the key supplied with each dispenser. *Automatically locks* when the top is snapped closed. Prevents pilfering of soap and dropping of cigarette butts, matches, etc. into the dispenser to clog the valve.

OPERATION OF NEW MODEL "A" VALVE

When in normal position, piston seats against washer, (C). The piston, itself, is ground to fit cylinder perfectly, and washer (C) is a tight fit around the piston rod—a triple guarantee against leakage.

When plunger is pressed inward piston closes port (A). At the same time port (D) opens after it passes washer (C). Soap is then forced from cylinder through port (B) under the piston through port (D)—and out the spout.

On the reverse operation, port (A) being closed, piston creates a vacuum in the cylinder, drawing the soap through the spout and cleaning all openings, *preventing clogging.*

As ports (A) and (D) are never open at same time there is no point at which plunger can be held to allow a steady stream to run out.

Entire valve is easily removed for cleaning by unscrewing the plug (E) with wrench supplied with each dispenser.

BOBRICK MANUFACTURING CORPORATION
NEW YORK CITY—215 Fourth Avenue
LOS ANGELES, 111-117 Garey Street

Oil Trades Name Smith

Joseph C. Smith of Smith-Weihman Co., New York, was elected president of the Oil Trades Association of New York at the annual meeting at the Waldorf-Astoria, New York, March 23. Mr. Smith has served as secretary of the organization for the past nineteen years. Other officers elected include:—Kenneth L. Patterson of Stanco Distributors, Inc., vice-president; Albert J. Squier, secretary; and Philip C. Moen, Borne Scrymser Co., treasurer.

New Drug Laws Offered

A new food and drug bill is being drafted by the U. S. Congress from which will be eliminated the past greatly disputed point of advertising control. It is this point of advertising control which has been holding up passage of a drug bill in the present and the last Congress. Concurrently a new measure has been introduced in the House by Representative Clarence Lea of California which would turn over control of advertising to the Federal Trade Commission. This new bill would make it a criminal offense to advertise a commodity in such a way as to make it injurious to health, or to misrepresent conditions for which a drug or cosmetic product is intended if such misrepresentation would result in an injury to health.

Acquires Metz Business

American Cyanamid & Chemical Corp., New York, announces the acquisition of the business of H. A. Metz & Co., Newark, N. J., as of March 1, 1937. The business of H. A. Metz & Co. will be consolidated with that of the American Cyanamid & Chemical Corp. and operated in the latter name. H. A. Metz & Co. have been prominent in the manufacture and distribution of textile and tanning chemicals and specialties. These will be manufactured and distributed as in the past with the added facilities of American Cyanamid & Chemical Corp. as to research, development and distribution.

New U. S. Specification Proposed for Potash-Linseed Oil Soap

THE first draft of a proposed new Federal specification for potash-linseed oil soap in paste form has just been released by F. W. Smither, chairman of the technical committee on detergents of the U. S. Federal Specifications Executive Committee, under date of March 8. It is requested that manufacturers and users of this type soap examine the tentative draft of the new specification carefully, so that any necessary changes can be made in the text before final adoption. Comments or criticisms will be welcomed. They should be forwarded as promptly as possible to F. W. Smither, National Bureau of Standards, Washington, D. C.

The complete text of the proposed new specification follows:

A. Applicable Federal Specifications.

A-1. There are no other Federal Specifications applicable to this specification.

A-2. Any special requirements of the individual departments of the Government are noted under Section H.

B. Type.

B-1. Potash-linseed oil soap shall be of but one type.

C. Material.

C-1. Soft soap shall be a uniform translucent, firm gel or paste made solely from linseed oil and potash, and shall conform to the detail requirements set forth in Section E.

D. General Requirements.

D-1. See Section E.

E. Detail Requirements.

E-1. Soap; soft, potash-linseed oil.—

E-1a. The material shall be a uniform translucent, firm gel or paste.

E-1b. **Odor.**—The odor shall not be objectionable. If desired, it shall conform to the odor of a sample mutually agreed upon by buyer and seller. The mutually agreed upon sample shall be kept in an air-tight, closed container for comparison with sample from deliveries. (See paragraphs F-1c, I-3 and I-4.)

E-1c. **Color.**—The material shall be of a yellowish-white to brownish-yellow color. If desired it shall conform to the color of a sample mutually agreed upon by buyer and seller. The mutually agreed upon sample shall be kept in an air-tight, opaque, closed container for comparison with samples from deliveries. (See paragraphs F-1c, I-3 and I-4.)

E-1d. **Matter volatile at 105 to 110° C.**—Volatile matter shall not exceed 55 per cent. Deliveries which yield more than 55 per cent of volatile matter shall be rejected without further test.

E-1e. The sum of free alkali and total matter insoluble in alcohol shall not exceed 1 per cent.

E-1f. Free alkali, calculated as potassium hydroxide (KOH), shall not exceed 0.05 per cent.

E-1g. Free acid, calculated as oleic acid, shall not exceed 0.2 per cent.

E-1h. Matter insoluble in soft water shall not exceed 0.2 per cent.

E-1i. Chloride, calculated as potassium chloride (KCl), shall not exceed 0.5 per cent.

E-1j. Unsaponified matter shall not exceed 2 per cent.

E-1k. Rosin or sugar shall not be present.

E-1l. The iodine number (Wijs) of the mixed fatty acids prepared from the soap shall be not less than 175.

E-1m. Anhydrous soap, calculated as potash soap, shall be not less than 43 percent.

E-1n. Not more than 0.5 per cent of sodium compounds, calculated as Na_2O, shall be present. Deliveries which show more than 0.5 per cent Na_2O shall be rejected without further test.

E-1o. The soap shall dissolve readily to give a 0.15 to 0.2 per cent solution, using soft water at 10° to 15.5° C (50° to 60° F). The solution so prepared shall yield a good suds.

E-1p. **Keeping qualities.**—The material shall not become rancid or otherwise deteriorate when kept in a closed container.

E-1q. **Computation.** — The percentage of matter volatile at 105 to 110° C will be computed on the basis of the soft soap as received, but all other constituents will be calculated to the basis of material containing 50 per cent of matter volatile at 105 to 110° C.

F. Methods of Sampling, Inspection, and Tests.

Deliveries will, in general, be sampled and tested by the following methods, but the purchaser reserves the right to use any additional available information to ascertain whether the material meets the specification.

F-1. **Sampling.**—

F-1a. **When packed in cans or cartons of 5 pounds or less.**—One can or carton shall be taken at random from not less than 1 per cent of the vendor's shipping containers, provided such containers contain not less than 50 pounds each. In case of smaller containers a can or carton shall be taken at random from each lot of containers totaling not to exceed 5000 pounds. The total sample shall in all cases consist of not less than three cans or cartons taken at random from separate containers. With very large lots where the sample drawn as above will amount to more than 20 pounds the percentage of packages sampled shall be reduced, so that the amount drawn shall not exceed 20 pounds. Wrap, seal, mark, and send to laboratory for test.

F-1b. **When Packed in bulk.**—Take at random a trier sample of not less than one-half pound from not less than 1 per cent of the vendor's shipping containers, provided such containers do not contain less than 50 pounds each. In case of smaller containers a trier sample shall be taken at random from each lot of containers totaling not to exceed 5000 pounds. The total sample shall in all cases consist of not less than 3 half-pound portions taken at random from separate containers. With very large lots where the sample drawn as above will amount to more than 10 pounds the percentage of packages sampled shall be reduced, so that the amount drawn shall not exceed 10 pounds. The inspector shall promptly place the combined sample in a clean, dry, air and water tight container, which shall be filled, seal, mark, and send to the laboratory for test. The seller shall have the option of being represented at the time of sampling and when he so requests shall be furnished with a duplicate sample.

F-1c. The inspector shall note whether the material meets the specification as to odor and color. (See paragraphs E-1b, E-1c, I-3 and I-4.)

F-2. **Testing.**—

F-2a. **Preparation of Sample.**—Note the color, odor, and condition of the sample. Mix thoroughly by kneading and quarter down to about 1 pound. Weigh out all portions for analysis promptly and preserve the remainder in an airtight container in a cool place.

F-2b. When a determination shows nonconformity with specifications, a duplicate shall be run.

F-2c. **Matter Volatile at 105° to 110° C.**—Weigh 5 g of the sample in a porcelain or glass dish, about 6 to 7 cm in diameter and 4 cm deep, dry to constant weight in an inert atmosphere at a temperature not exceeding 105° to 110° C. Report loss in weight as matter volatile a 105° to 110° C.

F-2d. **Total matter insoluble in alcohol. Free alkali or free acid.**—

F-2d (1) **Matter insoluble in alcohol.**—Digest hot a 10-g sample with 200 ml of freshly boiled neutral ethyl alcohol (94 per cent or higher). Filter through a counterpoised filter paper neutral to phenolphthalein, or a weighed Gooch crucible with suction, protecting the solution during the operation from carbon dioxide and other acid fumes. Wash the residue on the paper or in the crucible with hot neutral alcohol until free from soap. Dry the filter paper or crucible and residue at 100 to 105° C for three hours, cool, and weigh the total matter insoluble in alcohol.

F-2d (2) **Free alkali or free acid.**—Titrate the filtrate from the above, using phenolphthalein as indicator, with standard acid or alkali solution, and calculated the alkalinity to potassium hydroxide, or acidity to oleic acid.

F-2d (3) **Matter insoluble in water.**—Proceed as in the determination of matter insoluble in alcohol. After filtering and thoroughly washing the residue with alcohol, extract it with water at 60° C and wash the filter thoroughly with water. (When the matter insoluble in water is all inorganic, boiling water may be used for the extraction and wash.) Dry the filter and residue at 100 to 105° C for three hours, cool, and weigh matter insoluble in water. The nature of this may then be determined by further examination.

F-2e. **Chloride.**—Dissolve 10 g of the sample in 300 ml of water, boiling, if necessary, to effect solution of all soluble matter. Add an excess of neutral, chlorine-free magnesium nitrate solution (about 25 ml of a 20 per cent $Mg(NO_3)_2 \cdot 6H_2O$ solution). Without cooling or filtering, titrate with standard silver nitrate solution, using potassium chromate as indicator. Calculate as potassimu chloride.

F-2f. **Unsaponified matter.** — In a beaker on the steambath dissolve 5 g of the soap in about 100 ml of 50 per cent alcohol. If the sample has been found to contain free fatty acid, add just enough aqueous alkali to neutralize this. Evaporate off the bulk of the alcohol, take up with about 200 ml of hot water, and transfer to a separatory funnel of about 500 ml capacity, designated as no. 1. When cool, rinse out the beaker with about 50 ml of ether and add it to the soap solution. Shake thoroughly for one minute. By the addition of small amount of alcohol (5 ml portions and the total not to exceed 25 ml) a clear and rapid separation of the aqueous and ether layers is effected. After adding each alcohol portion the separatory funnel is not shaken but merely given a whirling movement. Draw off the aqueous portion into another separatory funnel, designated as no. 2. Wash the ether solution with 10 ml portions of water until this water is no longer alkaline to phenolphthalein. Add all of these washings to funnel no.2 and extract this solution with 200 ml portions of ether until the ether is absolutely colorless (three or four extractions should be sufficient). Combine these ether extracts in a third separatory funnel (no. 3) and wash with 10 ml portions of water until the water is no longer alkaline to phenolphthalein. Now add the ether in funnel no. 3 to that in funnel no. 1, a small amount of ether being used to rinse out funnel no. 3. Wash the ether solution with 20 ml of 10 per cent hydrochloric acid solution and then successively with 20 ml portions of water until the water is no longer acid to methyl orange. Filter the ether solution through a dry filter paper into a weighed beaker or flask. Evaporate or distill off the ether on the steambath, dry as under the determination of matter volatile at 105° C, and weigh the residue. Then heat with alcohol and when cool neutralize with standard alkali, using phenolphthalein. Deduct any appreciable amount of fatty acid found by this titration from the weight of the residue.

F-2g. **Rosin.**—A qualitative test for rosin may be made as follows: After decomposing a solution of the soap and separating the fatty acids heat a small quantity of the latter with acetic anhydride, cool, place a few drops on spot plate and add a drop of H_2SO_4 (specific gravity = 1.53) to this. A fugitive violet color indicates the presence of rosin.

F-2h. **Sugar.**—A qualitative test for sugar may be made as follows: Add a decided excess of hydrochloric acid to a solution of the soap, heat on a steambath for 15 minutes, cool, filter from fatty acids, and test a portion of the filtrate, which has been neutralized with sodium hydroxide solution, by boiling for two minutes with

(Turn to Page 121)

IT'S STILL "SWAT THE FLY" IN SOME HOUSEHOLDS!

DESPITE greater convenience and effectiveness, fly sprays and insecticides have failed to displace the old-fashioned "swatter" in many a home. Why? Because swatters leave no odor, while insecticides often do! And nowadays, fastidious housewives regard bad odors as telltale, offensive, and absolutely TABOO!

Catering to so particular a clientele, the manufacturer must be able to turn out a product freed completely of its characteristic smell. Today, through the aid of chemistry's latest developments, he can do this easily and inexpensively . . . can make his product pleasanter to use, more acceptable, and hence, more salable. For a convincing demonstration of this,—of how the modern perfume chemist can further the interests of the alert insecticide manufacturer,—send us an unperfumed sample of your product; we'll return it to you shortly, completely and permanently deodorized . . . and perfumed to please. You'll like it, we know!

"Fragrance Creates Sales Appeal"

FRITZSCHE Brothers, inc.

816 WEST 8TH STREET LOS ANGELES, CAL.
Proprietors of PARFUMERIES de SEILLANS Seillans, France
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PORT AUTHORITY COMMERCE BLDG.
76 NINTH AVENUE, NEW YORK, N. Y.
118 WEST OHIO ST. CHICAGO, ILL.

"Admiracion" on Radio

National Oil Products Co., Harrison, N. J., will sponsor a coast-to-coast radio program starting April 1 for its "Admiracion" shampoo. The program will consist of a half hour broadcast once a week, continuing for a full year.

Colgate Gets Tour Bid

An invitation to visit industrial research laboratories of Europe this summer on a tour organized by the National Research Council's Division of Engineering and Industrial Research has been received by Robert B. Colgate, vice-president, Colgate-Palmolive-Peet Co., Jersey City. Mr. Colgate is one of a selected group of American executives and bankers being invited to participate in the tour, the purpose of which is to afford a comparative study of industrial developments in England, Germany and France. The group will sail early in May, and will spend approximately six weeks abroad.

New Jergens Warehouse

Jergens Woodbury Sales Corp., Cincinnati, has just leased a four-story warehouse at 2409 Colerain Ave., Cincinnati. This gives the company 26,000 square feet of added storage space.

Offers Premium Ring

Crystal White Soap Co., Berkeley, Calif., is featuring a premium offer of a gold plated birthstone ring in the Sacramento district. The ring is given in exchange for twenty wrappers from its laundry soap.

Colgate Ex-Sales Mgr. Dies

Harold A. Bates, formerly sales manager for the soap department of Colgate & Co., Jersey City, prior to the Colgate-Palmolive-Peet Co. merger, died March 9 in the Wickersham Hospital, New York. Mr. Bates had been with Colgate & Co. for more than thirty years before his retirement in 1929. He was fifty-nine years old at the time of his death.

HOW TO KEEP COSTS DOWN WHEN FATS & OILS GO UP!

STRAWS IN THE WIND indicate soaring prices for fats and oils. It's a time when alert manufacturers use to the maximum P.Q. Silicate Service.

Proper ratio P.Q. Silicates of uniform reliable quality, in the crutcher assure the soap manufacturer of these double advantages:

1. Producing high quality soap
2. Holding down costs by using less oil

P.Q. experience in the application of silicates in household soaps dates back more than three-fourths of a century. Bulletin No. 1 (Revised Edition) reviews much of this. Send for a free copy.

P. Q. SILICATES OF SODA

PHILADELPHIA QUARTZ CO.

PHILADELPHIA

General Offices and Laboratory: 125 S. Third St., Phila., Pa.
Chicago Sales Office: Engineering Bldg. Stocks in 60 cities.
Sold in Canada by National Silicates Ltd., Toronto, Ont.

Works: Anderson, Ind., Baltimore, Md., Chester, Pa., Buffalo, N. Y., Kansas City, Kans., Rahway, N. J., St. Louis, Mo., Utica, Ill.

ESTABLISHED 1831

Please send Bulletin No. 1, P.Q. Silicates of Soda in Soapmaking.

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REG. U. S. PAT. OFF.

Contracts Awarded

Fort Mason Soap Bid

General Soap Co., San Francisco, was low bidder on a quantity of laundry soap at 4.4c for delivery to California quartermaster in a recent bidding.

Swift & Co. Low Bidder

In a recent opening for Brooklyn quartermaster, Swift & Co., New York, was lowest bidder on 24,338 lbs. soap at 10.06c.

Fort Mason Award

Colgate-Palmolive-Peet Co., Berkeley, Calif., has been awarded a contract for laundry soap at 4.89c for delivery to California quartermaster.

Insecticide Bid

R. M. Hollingshead Corp., Camden, N. J., was the low bidder on 550 gals. insecticide, with a price of 48c per gal. in a recent opening by U. S. Marine Corps, Washington, D. C.

Sam Houston Awards

The following awards have recently been made on material to be supplied to Fort Sam Houston, Texas: Day & Frick, Philadelphia, 7,100 cakes grit soap at 2.65c per cake; 9,100 cakes at 3.15c per cake, and General Soap Co., San Francisco, 271,320 lbs. laundry soap at 4.95c.

Naphthalene Bid

Harshaw Chemical Co. was low bidder for 20,000 lbs. flake naphthalene at 7.05c for delivery to Philadelphia quartermaster in a recent opening.

Chicago Soap Bids

Armour & Co., Chicago, was the low bidder in a recent opening for Chicago quartermaster on 1,250,040 lbs. laundry soap at 4.79c. Day & Frick, Philadelphia, was low bidder on 89,000 cakes grit soap at 1.68c per cake.

Philadelphia Engineer Award

Crystal Soap & Chemical Co., Philadelphia, has been awarded a contract in a recent Philadelphia Engineer opening on 1,500 lbs. hand grit soap with a price of $7.90.

Procter & Gamble Get Award

In a recent opening by the Chicago quartermaster, Procter & Gamble Co., Chicago, was awarded contract for 30,000 cakes laundry soap at 4.89c per cake.

Recommendation On Napthalene

Harshaw Chemical Co., Philadelphia, was low bidder recommended for award on 27,000 lbs. napthalene at 6.95c for delivery to U. S. Marine Corps., Philadelphia, at a recent opening. Bids were entered on 4,000 gals. disinfectant but no recommendations were made.

Jeffersonville Awards

The following awards have recently been made on materials to be supplied to Jeffersonville quartermaster, Indiana: Colgate-Palmolive-Peet Co., Jersey City, N. J., 150,000 lbs. laundry soap at 4½c; Unity Sanitary Supply Co., New York City, 15,000 10-oz. cakes grit soap at 3c; Jas. Good, Philadelphia, 5,000 cakes grit soap, 10 oz. at 3.28c per cake; Eagle Steel Wool Co., Washington, 400 lbs. steel wool at 12c.

ADMA Meets May 3-6

The twenty-sixth annual meeting of the American Drug Manufacturers Association will be held at the Homestead, Hot Springs, Va., May 3-6. Detailed plans have just been announced by James J. Kerrigan, Merck & Co., Rahway, N. J., chairman of the general entertainment committee. The following subcommittees have been named: *Transportation*, Robert B. Magnus, Magnus, Mabee & Reynard, Inc., and James C. Chilcott, Maltine Co.; *Tennis*, S. Barksdale Penick, Jr., S. B. Penick & Co. and Gerald S. Furman, Merck & Co.; *Golf*, Victor E. Williams, Monsanto Chemical Co.; Herman J. Dietel, Merck & Co., and J. P. Remensnyder, Heyden Chemical Corp; *Ladies' Entertainment*, George Simon, Heyden Chemical Corp.; A. A. Wasserscheid, Mallinckrodt Chemical Works, and James T. Pardee, Dow Chemical Co.; *Banquet*, F. J. McDonough, New York Quinine & Chemical Works, and M. N. DeNoyelles, Chas. Pfizer & Co.; *Evening Entertainment*, William D. Barry, Mallinckrodt Chemical Works; *Publicity*, A. D. Armstrong, Fritzsche Brothers, Inc.

Check "Kolynos" Claims

Kolynos Co., New Haven, Conn., has been charged by the U. S. Federal Trade Commission with unfair competition in the sale of "Kolynos" tooth paste. The complaint cites claims that "Kolynos" erases or removes strain and tartar; that it will whiten teeth several shades in a few days; and that it cleans teeth down to the white enamel without injury. Other claims are to the effect that "Kolynos" almost instantly kills millions of germs which cause most ailments of teeth and gums; that it keeps the teeth and mouth thoroughly clean and healthy on account of its germicidal and antiseptic properties, and that it will remove or conquer bacterial mouth. The complaint charges that such claims are misleading and untrue. Kolynos Co. has been granted twenty days in which to file answer to the charges.

Drug Association Meets

The annual business meeting and election of officers of the Chicago Drug and Chemical Association was held March 25th at the Chicago Athletic Association. At the time SOAP went to press no announcement had been made regarding the report of the nominating committee.

New Trade Marks

The following trade-marks were published in the March issues of the *Official Gazette* of the United States Patent Office in compliance with Section 6 of the Act of September 20, 1905, as amended March 2, 1907. Notice of opposition must be filed within thirty days of publication. As provided by Section 14, fee of ten dollars must accompany each notice of opposition.

Trade Marks Filed

CURL-A-NEW — This in solid letters describing soap. Filed by Erwin F. Lechler, New York, Sept. 9, 1935. Claims use since June 1, 1935.

MAS-Q-LINE — This in solid letters describing shaving lotion. Filed by Bloomingdale Bros., New York, Oct. 12, 1936. Claims use since May 7, 1936.

KLOK — This together with clock inside of letter O describing cleaning compound. Filed by Domestic Products, Inc., Minneapolis, Nov. 9, 1936. Claims use since June 6, 1936.

GREEN NILE — This in solid letters describing toilet soap. Filed by National Retailer-Owned Grocers, Chicago, Nov. 14, 1936. Claims use since Oct. 13, 1936.

GYPSY—This in solid letters describing toilet soap. Filed by National Retailer-Owned Grocers, Chicago, Nov. 14, 1936. Claims use since Oct. 13, 1936.

PICTORIAL—This in solid letters describing toilet soap. Filed by Irineos Cassimatis, Gary, Ind., Dec. 14, 1936. Claims use since Nov. 9, 1935.

GULF—This with circle background lined for orange and blue describing cleaner and spot remover. Filed by Gulf Oil Corp., Pittsburgh, Dec. 16, 1936. Claims use since Nov. 1934.

JULES' HI-LI — This in solid letters describing metal powder polish. Filed by Jules Donshick, Oakland, Calif., Dec. 21, 1936. Claims use since Nov. 11, 1936.

VAPO-FUME—This together with leaf background describing parasiticides. Filed by Tobacco By-Products & Chemical Corp., Louisville, Ky., Dec. 10, 1936. Claims use since Nov. 16, 1936.

VAPO-FUME—This in outline letters describing parasiticides. Filed by Tobacco By-Products & Chemical Corp., Louisville, Ky., Dec. 10, 1936. Claims use since Nov. 16, 1936.

KAR-SKIN—This in solid letters describing polishing waxes. Filed by Cresson Products Co., New Hope, Pa., Aug. 28, 1936. Claims use since May 18, 1936.

GLEAMAX—This in solid letters describing polishing wax. Filed by National Solvents Co., Washington, D. C., Dec. 19, 1936. Claims use since May 18, 1936.

MOR-FOAM — This in heavy script describing toilet soap. Filed by National Retailer-Owned Grocers, Chicago, Nov. 14, 1936. Claims use since Oct. 13, 1936.

BIG CHIEF—This together with Indian head describing fly spray. Filed by Rock Products Co., Beloit, Wis., Nov. 19, 1936. Claims use since June, 1930.

MAJ-I-CAL — This on stencil describing preparations controlling plant pests. Filed by General Chemical Co., New York, Dec. 24, 1936. Claims use since Oct. 9, 1936.

ZINTOX—This on stencil describing preparations controlling plant pests. Filed by General Chemical Co., Dec. 24, 1936. Claims use since Nov. 10, 1936.

D X — This in shaded letters describing insecticides. Filed by B. G. Pratt Co., New York, Dec. 24, 1936. Claims use since Sept. 11, 1936.

HALO—This in solid letters describing shampoo. Filed by Colgate-Palmolive-Peet Co., Jersey City, Dec. 29, 1936. Claims use since Jan. 4, 1915.

EXTO—This with dark background describing insecticides. Filed by Leehan Products Co., Fall River, Mass., Dec. 30, 1936. Claims use since Feb. 2, 1934.

SANI — This in solid letters describing furniture polish. Filed by John T. Toner, New York, Oct. 14, 1936. Claims use since Aug. 1, 1936.

INSPECTO—This in solid letters describing cleaner for canvas equipment. Filed by Inspecto Co. of America, Los Angeles, Nov. 20, 1936. Claims use since May 1, 1935.

SILVER SURF — This together with beach scene describing polishing powder. Filed by Keene Washing Products Co., Keene, N. H., Nov. 27, 1936. Claims use since Apr. 18, 1935.

WINDO-MIST — This in solid letters describing glass cleaning preparations. Filed by Wizard, Inc., Chicago, Nov. 30, 1936. Claims use since June 3, 1936.

MULSITE—This in solid letters lined for red and blue describing powdered or granular soap. Filed by Ward Chemical & Mfg. Co., New York, Dec. 10, 1936. Claims use since July 18, 1936.

SUPER NU-WASH — This together with woman holding clothes basket describing cleaning compound. Filed by Super Nu-Wash Cleanser Co., St. Louis, Dec. 12, 1936. Claims use since Jan. 1935.

RUSGO—This in outline letters describing chromium polish. Filed by Rusgo Mfg. Co., Milwaukee, Dec. 12, 1936. Claims use since Sept. 9 1936.

ZETTOL—This in solid letters describing antiseptic and germicide. Filed by R. T. French Co., Rochester, Jan. 8, 1937. Claims use since Dec 29, 1936.

PICTURE OF WOMAN spraying bed, describing bedbug destroyer. Filed by B. Heller & Co., Chicago, Dec. 24, 1936. Claims use since Mar. 16, 1927.

T AND T—This in solid letters describing tooth powder. Filed by T. & T. Tooth Powder Co., Flushing, N. Y., Dec. 28, 1936. Claims use since Mar. 16, 1935.

PENN-X—This in solid letters describing disinfectant preparation. Filed by Rockland Chemical Co., Newark, Jan. 4, 1937. Claims use since Jan., 1931.

ENAMOLITE—This in solid letters describing dentifrices. Filed by Marcus A. Fuller, Springfield, Mass., Dec. 2, 1936. Claims use since Nov. 28, 1936.

ENAMODENT—This in solid letters describing dentifrices. Filed by Marcus A. Fuller, Springfield, Mass., Dec. 2, 1936. Claims use since Nov. 28, 1936.

PRONTO—This in solid letters describing hand cleaners. Filed by A. M. Alexander, Chicago, Mar. 16, 1935. Claims use since July 1, 1930.

2 IN 1—This in solid letters describing soap for personal use. Filed by Universal Chemical Corp., Akron, O., Dec. 3, 1936. Claims use since Nov., 1936.

HI-DI — This in solid letters describing insecticides. Filed by Derris, Inc., New York, Dec. 26, 1935. Claims use since Nov. 4, 1935.

Trade Marks Granted

343,462. Household Cleanser. Keene Washing Products Co., Keene, N. H. Filed June 26, 1936. Serial No. 380,287. Published December 8, 1936. Class 4.

343,507. Insecticides, Germicides, and Bactericides. Rudolph Rebold, New York. Filed September 14, 1936. Serial No. 383,226. Published December 8, 1936. Class 6.

343,538. Insecticides. Mabex Co., Philadelphia. Filed October 2, 1936. Serial No. 383,889. Published December 8, 1936. Class 6.

343,564. Vaginal Antiseptic. Lydia Allen DeVilbiss, Miami. Filed October 10, 1936. Serial No. 384,201. Published December 8, 1936. Class 6.

343,597. Glass Cleanser. H. Kirk White & Co., Oconomowoc, Wis. Filed October 17, 1936. Serial No. 384,488. Published December 8, 1936. Class 4.

343,603. Dry Cleaning Soap. Benzofoam Products Co., Chicago. Filed October 19, 1936. Serial No. 384,540. Published December 8, 1936. Class 4.

343,789. Liquid, in which Insecticidal and Germicidal Agents are Dissolved. Noxon Chemical Products Co., Newark, N. J. Filed April 19, 1933. Serial No. 336,955. Published July 3, 1934. Class 6.

343,791. Cleaner. Climax Cleaner Manufacturing Co., Cleveland. Filed December 18, 1933. Serial No. 345,047. Published March 19, 1935. Class 4.

343,970. Tooth Paste. Dentos Dentifrice Co., Chicago. Filed Oct. 7, 1936. Serial No. 384,073. Published December 29, 1936. Class 6.

343,805. Radiator Cleaning Compound. Pure Oil Co., Chicago. Filed December 23, 1935. Serial No. 372,995. Published December 22, 1936. Class 6.

343,837. Felt Hat Cleaner. Lustor Manufacturing Co., San Jose, Calif. Filed May 25, 1936. Serial No. 378,870. Published December 22, 1936. Class 4.

343,842. Household Cleaner. Feinberg Kosher Sausage Co., Minneapolis. Filed June 5, 1936. Serial No. 379,339. Published December 22, 1936. Class 4.

343,859. Toilet Soap. Valmor Products Co., Chicago. Filed July 8, 1936. Serial No. 380,786. Published December 22, 1936. Class 4.

343,905. Insecticides. Alfredo Cordero, New York. Filed September 3, 1936. Serial No. 382,865. Published December 29, 1936. Class 6.

343,943. Metal Cleaning and Polishing Preparations. Cosmic Products Co., Oakland, Calif. Filed September 28, 1936. Serial No. 383,725. Published December 22, 1936. Class 4.

343,961. Drain Pipe Flush. Enoz Chemical Co., Chicago. Filed October 5, 1936. Serial No. 383,992. Published December 22, 1936. Class 6.

344,052. Furniture Polish and Auto Wax. Gulf Oil Corp., Pittsburgh. Filed October 30, 1936. Serial No. 384,962. Published December 29, 1936. Class 16.

344,115. Automobile Polish. Union Oil Co. of California, Los Angeles. Filed May 25, 1935. Serial No. 365,398. Published January 5, 1937. Class 16.

344,126. Midway Chemical Co., Chicago. Filed January 20, 1936. Serial No. 373,883. Published January 5, 1937. Class 6.

344,137. Shaving Cream. Karol Preparations, Inc., New York. Filed April 4, 1936. Serial No. 376,806. Published June 30, 1936. Class 4.

344,171. Soap. John T. Stanley Co., New York. Filed August 25, 1936. Serial No. 382,576. Published November 3, 1936. Class 4.

344,230. Silver Polish. Hallmark Co., New York. Filed October 23, 1936. Serial No. 384,727. Published December 29, 1936. Class 4.

344,234. Liquid Glass Cleaner. Glass-Glow Co., Indianapolis. Filed October 26, 1936. Serial No. 384,783. Published December 29, 1936. Class 4.

344,236. Silver Polish. Western Products Co., Fargo, N. Dak. Filed Oct. 26, 1936. Serial No. 384,823. Published Dec. 29, 1936. Class 4.

344,246. Laundry Compound. National Milling & Chemical Co., Philadelphia. Filed Oct. 28, 1936. Serial No. 384,903. Published Jan. 5, 1937. Class 4.

344,258. Toilet Soap. Los Angeles Soap Co., Los Angeles. Filed November 2, 1936. Serial No. 385,047. Published January 5, 1937. Class 4.

344,286. Saponaceous Compounds. Shulton, Inc., New York. Filed Sept. 19, 1936. Serial No. 383,451. Published Dec. 29, 1936. Class 4.

344,294. Saponaceous Material. B & L Laboratories, Inc., Chicago. Filed Sept. 30, 1936. Serial No. 383,798. Published Dec. 29, 1936. Class 4.

344,300. Furniture Polish and Cleaner. Pokadot Chemical Co., Greenville, Pa. Filed November 6, 1936. Serial No. 385,217. Published January 5, 1937. Class 16.

Irish Soap Imports Lower

The Irish Free State is rapidly becoming self-sufficient insofar as its soap requirements are concerned, reports from Dublin indicate. Only 3,216 hundred-weight were imported during the first eight months of 1936, against 13,259 in the corresponding months of 1935, and 27,400 during the whole of 1934.

Raw Material Markets

(As of March 29, 1937)

NEW YORK—There was a mixed character to developments in the market for soap and sanitary products raw materials this period, with varying influences causing a series of advances and declines in different key commodities. The industry was reported to be buying at an active rate to keep pace with capacity production schedules which are in effect in many plants. To date the soap and sanitary products industry has been fortunate in encountering very little labor trouble and so has been enabled to avoid the costly shut-downs which have stopped consumption of raw materials in some other industries.

In the oil and fat market there was no definite trend to prices, with the trade still awaiting the decision of the U. S. Supreme Court in the Philippine coconut oil tax cases before definitely framing future buying policies. A development of interest during the period was the introduction in Congress of a new bill to remove the duty on imported tallow.

The glycerine market exhibited a somewhat easier tone this period, with prices moderately lower, and stocks reported to be more readily obtainable than in recent months. Rosin quotations also suffered a substantial decline this period, this being a normal situation with the approch of the new season.

The situation in cresylic acid has grown more acute in recent weeks. Prices are higher and very firmly maintained. There is very apparently a world wide as well as a domestic shortage, indicating that no relief from the present stringency can be expected in the near future. At present, manufacturers are hard put to take care of thir contract accounts.

In the perfuming materials market the usual list of advances and declines was noted. In recent weeks a much firmer tone has been noted in quotations on aromatic chemicals and there were several additional advances in synthetic perfuming materials this period.

OILS AND FATS

Coconut Oil

The weakest feature of the oil and fat market this period was coconut oil, which is currently quoted a cent a pound lower than its level of a month ago. The explanation is found in a lessened demand and freer offerings. Many users seem to have covered their current needs at prices previously prevailing, and found the 9½c level too high. The current spot market is 8½c.

Palm Oil

Shipment prices were advanced fractionally earlier in the period. More recently spot quotations have also scored a moderate advance as a result of the limited supplies currently available.

Olive Oil

The olive oil market continues to exhibit a strong tone. Prices have not changed, but in any case are merely nominal as they have been for some time. Reports from abroad indicate that Italy is facing a serious domestic shortage of olive oil. The 1936 crop was estimated to be 27 per cent below normal, and measures have been adopted to restrict export of Italian oil needed at home.

Tallow

There was little activity in the tallow market this period, with buyers inclined to hold off pending the clarifying decision of the U. S. Supreme Court in the coconut oil case. Little substantial buying interest was evidenced and price changes were of minor proportions. A bill has just been introduced in Congress by Representative Peyser of New York to remove the three cent tax on tallow imports.

PERFUMING MATERIALS

Anise Oil

Anise oil continued to recede further from previous peak prices this period, and is now quoted in the neighborhood of 80 to 85c. The tone of the market still remains strong as stocks are very definitely limited.

Cedarwood Oil

Prices were forced higher this period by a shortage of Southern oil. The market now ranges between 26 and 30c.

Citronella Oil

Citronella oil continued to decline this period, and both Java and Ceylon oil are now several cents lower than a month ago. Java ranges between 43 and 45c, with Ceylon oil from 42 to 44c.

CRESYLIC ACID

There is no relief in sight from the acute shortage of cresylic acid. With stocks limited, both here and abroad, new sources are being tapped wherever possible. Sellers in most cases have all they can do to take care of contract requirements of their regular trade.

GLYCERINE

The glycerine market displayed a somewhat easier tone this period, with quoted prices showing several cents lower than for a month or two back. Producers of crude are not anxious sellers at these lower levels, however, and seem inclined to await a resumption of the upward trend. European prices are still above a parity with the American market, and until this situation is changed there is no opportunity to draw on these sources.

PYRETHRUM

A definitely firmer tone was noted in the pyrethrum extract market this period, with prices advancing substantially from the levels of a month and six weeks ago. The twenty-to-one extract now ranges from $4.00 per gal. upward.

Raw Material Prices

(As of March 29, 1937)

Minimum Prices are for car lots and large quantities. Price range represents variation in quotations from different suppliers and for varying quantities.

Chemicals

Acetone, C. P., drums	lb.	$ .11	$ .12½
Acid. Boric, bbls., 99½%	ton	95.00	100.00
Cresylic, drums	gal.	.83	.85
Low boiling grade	gal.	.88	.90
Oxalic, bbls.	lb.	.11½	.12¼
Adeps Lanae, hydrous, bbls.	lb.	.16	.18
Anhydrous, bbls.	lb.	.17	.19
Alcohol, Ethyl, U. S. P., bbls.	gal.	4.14	4.19
Complete Denat., SD 1, drums, ex.	gal.	.32	.37
Alum. Potash lump	lb.	.03¼	.03½
Ammonia Water, 26°, drums, wks.	lb.	.02½	.02¾
Ammonium Carbonate, tech., bbls.	lb.	.08	.12½
Bentonite 1	ton	—	16.00
Bentonite 2	ton	—	11.00
Bleaching Powder, drums	100 lb.	2.25	2.60
Borax, pd., cryst., bbls., kegs	ton	50.00	55.00
Carbon Tetrachloride, car lots	lb.	—	.05¼
Caustic, see Soda Caustic, Potash Caustic			
L. C. L.	lb.	.07	.08
China Clay, filler	ton	10.00	25.00
Cresol, U. S. P., drums	lb.	.10	.10½
Creosote Oil	gal.	.13	.13½
Feldspar (200 to 325 mesh)	ton	14.00	15.00
Formaldehyde, bbls.	lb.	.05¾	.06¼
Fullers Earth	ton	15.00	24.00
Glycerine, C. P., drums	lb.	.29	.29½
Dynamite, drums	lb.	.29	.29½
Saponification, drums	lb.	.23	.24
Soap, lye, drums	lb.	.22	.23
Hexalin, drums	lb.	—	.30
Kieselguhr, bags	ton	—	35.00
Lanolin, see Adeps Lanae.			
Lime, live, bbls.	per bbl.	1.70	2.20
Mercury Bichloride, kegs	lb.	.71	.76
Naphthalene, ref. flakes, bbls.	lb.	.07¼	.07½
Nitrobenzene (Myrbane) drums	lb.	.09	.11
Paradichlorbenzene, bbls., kegs	lb.	.16	.25
Petrolatum, bbls. (as to color)	lb.	.02	.07¼
Phenol, (Carbolic Acid), drums	lb.	.13¼	.14¼
Pine Oil, bbls.	gal.	.59	.64
Potash, Caustic, drums	lb.	.06¼	.06½
Flake	lb.	.07	.07¼
Potassium Carbonate, solid	lb.	.07¼	.09½
Liquid	lb.	.03½	.03¾
Pumice Stone, powder	100 lb.	3.00	4.00
Rosins (600 lb. bbls. gross for net)—			
Grade B to H, basis 280 lbs.	bbl.	8.75	10.00
Grade K to N	bbl.	10.00	10.05
Grade WG and X	bbl.	10.05	11.00
Wood FF Spot	bbl.	9.76	10.85
Rotten Stone, pwd. bbls.	lb.	.02½	.04½
Silica	ton	20.00	27.00
Soap, Mottled	lb.	.04⅛	.04⅜
Olive Castile, bars	lb.	.26	.35
Olive Castile, powder	lb.	.28	.38
Powdered White, Neutral	lb.	.19½	.21½
Olive Oil Foot, bars, 68-70%	lb.	.09	.09½
Green, U. S. P.	lb.	.08	.09½
Tallow Chips, 88%	lb.	.09	.09½
Soda Ash, cont., wks., bags, bbls.	100 lb.	1.23	1.50
Car lots, in bulk	100 lb.	—	1.05
Soda Caustic, cont., wks., solid	100 lb.	—	2.60
Flake	100 lb.	—	3.00
Liquid, tanks	100 lb.	—	2.25
Soda Sal., bbls.	100 lb.	$1.10	$1.30
Sodium Chloride (Salt)	ton	11.40	14.00
Sodium Fluoride, bbls.	lb.	.07¼	.08¾
Sodium Hydrosulphite, bbls.	lb.	.19	.20
Sodium Silicate, 40 deg., drum.	100 lb.	.80	1.20
Drums, 52 deg. wks.	100 lb.	1.35	1.75
Tar Acid Oils, 15-25%	gal.	.21	.24
Triethanolamine	lb.	.20	.25
Trisodium Phosphate, bags, bbls.	lb.	.03	.03½
Zinc Oxide, lead free	lb.	.06	.06¼
Zinc Stearate, bbls.	lb.	.20	.22

Oils — Fats — Greases

Babassu, tanks, futures	lb.	—	.11¼
Castor, No. 1, bbls.	lb.	.10¾	.11½
No. 3, bbls.	lb.	.10¼	.11
Coconut			
Manila, tanks, N. Y.	lb.	—	.08½
Tank, Pacific coast, futures	lb.	.08¼	Nom.
Cod, Newfoundland, bbls.	gal.	.51	Nom.
Copra, bulk, coast	lb.	.0525	.0530
Corn tanks, mills	lb.	.10⅛	.10¼
Cottonseed, crude, tanks, mill	lb.	09⅞	.10
PSY, futures	lb.	.11⅛	.11¼
Degras, Amer., bbls.	lb.	.07¾	.08
English, bbls.	lb.	.07¾	.08
Neutral, bbls.	lb.	.11½	.13
Greases, choice white bbls., fob			
Chicago	lb.	.09¼	.10¼
Yellow	lb.	.08⅞	.09
House	lb.	.08⅞	.09
Lard, City	lb.	.12¾	.13
Compound tierces	lb.	.13½	.13¾
Lard Oil,			
Extra, bbls.	lb.	—	.13½
Extra, No. 1, bbls.	lb.	—	.13½
No. 2, bbls.	lb.	—	.13
Linseed, raw, bbls.	lb.	.1070	.1110
Tanks, raw	lb.	—	.1010
Boiled, 5 bbl. lots	lb.	.1190	.1210
Menhaden, crude, tanks, Balt.	gal.	.42	—
Oiticica Oil	lb.	.11½	.12
Oleo Oil, No 1, bbls., N. Y.	lb.	—	.13⅜
No. 2, bbls., N. Y.	lb.	—	.12⅞
Olive, denatured, bbls., N. Y.	lb.	1.60	Nom.
Foots, bbls., N. Y.	lb.	.12	Nom.
Palm	lb.	.06	.07
Palm Kernel, casks, denatured	lb.	—	.07½
Peanut, domestic, tanks	lb.	.10¼	Nom.
Rapeseed Oil, denat.	gal.	.89	.90
Red Oil, distilled, bbls.	lb.	.11⅝	.12⅝
Saponified, bbls.	lb.	.11⅝	.12⅝
Tanks	lb.	—	.10¾
Sesame Oil, dms.	lb.	.13	Nom.
Soya Bean, domestic tanks, saponified, f.o.b. West	lb.	.10½	Nom.
Stearic Acid,			
Double pressed	lb.	.12½	.13½
Triple pressed, bgs.	lb.	.15¼	.16¼
Stearine, oleo, bbls.	lb.	.10¼	.10½
Sunflower Seed Oil, refd., dms.	lb.	.12¼	Nom.
Tallow, special, f.o.b. plant	lb.	—	.09⅛
City, ex. loose, f.o.b. plant	lb.	—	.09¼
Tallow oils, acidless, tanks, N. Y.	lb.	—	.13
Bbls., c/l N. Y.	lb.	—	.13½
Teaseed Oil	lb.	.12½	Nom.
Whale, refined	lb.	.1010	.1030

(*As of March* 29, 1937)

Essential Oils

Almond, Bitter, U. S. P.	lb.	$2.75	$3.00
Bitter, F. F. P. A.	lb.	3.00	3.25
Sweet, cans	lb.	.75	.80
Anise, cans, U. S. P.	lb.	.80	.85
Bay tins		1.35	1.50
Bergamot, coppers	lb.	3.50	4.00
Artificial	lb.	1.00	1.40
Birch Tar, rect. tins	lb.	.70	.75
Crude, tins	lb.	.14	.17
Bois de Rose, Brazilian	lb.	1.25	1.35
Cayenne	lb.	2.75	3.00
Cade, cans	lb.	.38	.52
Cajeput, native, tins	lb.	.45	.48
Calamus, tins	lb.	3.50	3.75
Camphor, Sassy, drums	lb.	.16	.17
White, drums	lb.	.18	.19
Cananga, native, tins	lb.	1.75	2.25
Rectified, tins	lb.	3.00	3.35
Caraway Seed	lb.	2.10	2.25
Cassia, Redistilled, U. S. P.	lb.	1.00	1.05
Cedar Leaf, tins	lb.	1.00	1.05
Cedar Wood, light, drums	lb.	.26	.30
Citronella, Java, drums	lb.	.43	.45
Citronella, Ceylon, drums	lb.	.42	.44
Clove, U. S. P., tins	lb.	1.25	1.27
Eucalyptus, Austl., U. S. P., cans	lb.	.45	.50
Fennel, U. S. P., tins	lb.	1.05	1.10
Geranium, African, cans	lb.	4.85	5.50
Bourbon, tins	lb.	4.60	5.15
Turkish	lb.	2.55	2.65
Hemlock, tins	lb.	1.05	1.10
Lavender, U. S. P., tins	lb.	2.25	6.00
Spike, Spanish, cans	lb.	1.05	1.10
Lemon, Ital., U. S. P.	lb.	3.75	4.25
Cal.	lb.	3.50	—
Lemongrass, native, cans	lb.	.50	.52
Linaloe, Mex., cases	lb.	1.15	1.20
Nutmeg, U. S. P., tins	lb.	1.35	1.37
Orange, Sweet, W. Ind., tins	lb.	2.10	2.20
Italian cop	lb.	4.00	4.50
Distilled	lb.	—	.90
Cal	lb.	2.75	—
Origanum, cans, tech	lb.	1.00	1.25
Palmarosa	lb.	2.75	3.00
Patchouli	lb.	5.00	6.00
Pennyroyal, dom.	lb.	1.65	1.75
Imported	lb.	1.60	1.85
Peppermint, nat., cans	lb.	2.45	2.55
Redis., U. S. P., cans	lb.	2.75	2.85
Petitgrain, S. A., tins	lb.	1.20	—
Pine Needle, Siberian	lb.	.85	.90
Rose, Natural	oz.	5.25	22.50
Artificial	oz.	2.00	3.00
Rosemary, Spanish, tins	lb.	.60	.65
drums	lb.	.55	.60
Sandalwood, E. Ind., U. S. P.	lb.	4.80	5.50
Sassafras, U. S. P.	lb.	.75	1.25
Artificial	lb.	.34½	.35½
Spearmint, U. S. P.	lb.	1.75	2.00
Thyme, red, U. S. P.	lb.	.95	1.25
White, U. S. P.	lb.	1.05	1.35
Vetivert, Bourbon	lb.	9.00	18.00
Ylang Ylang, Bourbon	lb.	3.50	6.00

Aromatic Chemicals

Acetophenone, C. P.	lb.	$1.25	$2.25
Amyl Cinnamic Aldehyde	lb.	1.55	2.00
Anethol	lb.	1.15	1.20
Benzaldehyde, tech.	lb.	.60	.65
U. S. P.	lb.	1.20	1.30
Benzyl, Acetate	lb.	.56	1.00
Alcohol	lb.	.65	1.15
Citral	lb.	2.00	2.30
Citronellal	lb.	1.10	1.25
Citronellol	lb.	1.90	2.15
Citronellyl Acetate	lb.	4.50	7.00
Coumarin	lb.	3.10	3.30
Cymene, drums	gal.	.90	1.25
Diphenyl oxide		.70	1.00
Eucalyptol, U. S. P.	lb.	.65	.70
Eugenol, U. S. P.	lb.	2.00	2.50
Geraniol, Domestic	lb.	.75	2.00
Imported	lb.	2.00	3.00
Geranyl Acetate	lb.	2.00	2.50
Heliotropin	lb.	2.00	2.10
Hydroxycitronellal	lb.	3.50	9.00
Indol, C. P.	oz.	2.00	2.50
Ionone	lb.	3.25	5.50
Iso-Eugenol	lb.	3.00	4.25
Linalool	lb.	1.65	2.25
Linalyl Acetate	lb.	1.70	2.55
Menthol	lb.	3.50	3.60
Methyl Acetophenone	lb.	2.50	3.00
Anthranilate	lb.	2.10	2.75
Paracresol	lb.	4.50	6.00
Salicylate, U. S. P.	lb.	.40	.45
Musk Ambrette	lb.	4.20	5.00
Ketone	lb.	4.35	5.25
Xylene	lb.	1.25	2.00
Phenylacetaldehyde	lb.	4.80	8.00
Phenylacetic Acid, 1 lb., bot.	lb.	2.50	3.25
Phenylethyl Alcohol, 1 lb. bot.	lb.	4.00	4.50
Rhodinol	lb.	5.75	8.00
Safrol	lb.	.54	.57
Terpineol, C. P., 1,000 lb. drs.	lb.	.23	.25
Cans	lb.	.27	.30
Terpinyl Acetate, 25 lb. cans	lb.	.90	1.00
Thymol, U. S. P.	lb.	1.70	1.95
Vanillin, U. S. P.	lb.	3.75	4.00
Yara Yara	lb.	1.30	2.00

Insecticide Materials

Insect Powder, bbls.	lb.	.17	.19
Concentrated Extract			
5 to 1	gal.	1.15	1.20
20 to 1	gal.	4.00	4.15
30 to 1	gal.	5.75	5.80
Derris, powder—4%	lb.	.33	.38
Derris, powder—5%	lb.	.39	.44
Cube, powder—4%	lb.	.23	.28
Cube, powder—5%	lb.	.28	.33

Gums

Arabic, Amb. Sts.	lb.	.10½	.11
White, powdered	lb.	.14	.15
Karaya, powdered No. 1	lb.	.09½	.10
Tragacanth, Aleppo, No. 1	lb.	2.75	2.80
Flake	lb.	.50	1.00

Waxes

Bees, white	lb.	.40	.42
African, bgs.	lb.	.29	.30
Refined, yel.	lb.	.34	.38
Candelilla, bgs.	lb.	.15½	.16½
Carnauba, No. 1	lb.	.45	.46½
No. 2, N. C.	lb.	.40	.41
No. 3, chalky	lb.	.35	.36
Ceresin, yellow	lb.	.08½	.11
Paraffin ref. 125-130	lb.	.0455	.04¾

PRODUCTION SECTION

A section of SOAP devoted to the technology of oils, fats, and soaps published prior to Jan. 1, 1932, as a separate magazine under the title, *Oil & Fat Industries*.

Fatty Acid Saponification

IN saponifying fatty acids with soda ash, either one may be added to the other. With large soap kettles, a convenient method of mixing is to add the hot fatty acids to the carbonate solution through a spraying device. In this way the fatty acids are introduced in a finely divided state. Also a part of the carbonate solution may be similarly added through a spray, which would promote the easy escape of carbon dioxide, and avoid excessive "raising" of the mixture in the kettle. If desired the whole of the carbonate charge may be put in the kettle and dissolved in water before any fatty acid is added.

Allowance must be made for swelling of the charge during saponification, so that a relatively large-volume kettle is necessary. If the volume of the reaction mixture threatens to become too great, hot water may be added during the saponification process to reduce the volume of the mass. This also helps to make the soap smooth. The soap mass should never be allowed to become too thick as this tends to prevent escape of CO_2. A suggested procedure is to saponify a part of the fatty acid mixture in a separate and smaller vessel and then pump this into the main pan. The extra trouble involved in this method is small and is equalized by the better reaction of the final soap mass.

Since the fatty acids used are not 100 per cent but carry some unsplit fat, it is necessary to determine the content of free fatty acids present. This can be calculated from the acid number and saponification number determinations. The percentage of fatty acid equals the number of cc. of 0.5 *N* potassium hydroxide solution used for the determination of acid number, times 100, divided by the number of cc. of 0.5 *N* potassium hydroxide solution required in the determination of saponification number. For example, assume that 15.9 cc. of 0.5 *N* potassium hydroxide solution are used for the determination of acid number and 18.2 cc. for the determination of saponification number, then

$$\frac{a \times 100}{s} = \frac{15.9 \times 100}{18.2} = 87.35\%$$

fatty acids. Therefore 7.65 per cent of neutral fat must be saponified with caustic. In practice, if the proportion of free fatty acid is calculated as about 85 per cent, the amount of soda ash used is that corresponding to 80 per cent of fatty acids. The remainder of the free fatty acids as well as the neutral fat is saponified with caustic.

The following is an example of the calculation of the necessary amount of carbonate and caustic. Suppose the fatty acid charge to consist of:

1000 kg. of Japanese fish oil fatty acids (1 kg. equals 2.2 pounds)	
2000 kg. of coconut or palm kernel oil fatty acids	
1500 kg. of palm oil fatty acids	
500 kg. of peanut oil fatty acids	
5000 kg.	

For 100 kg. of these fatty acids, the following amounts of soda ash are required:

Japanese fish oil fatty acids	19.23 kg.
Kernel oil fatty acids	25.36 kg.
Palm oil fatty acids	20.11 kg.
Peanut oil fatty acids	19.53 kg.

On an 80 per cent basis as explained above, this amounts to a total of:

153.84 kg.	
405.76 kg.	
241.32 kg.	
97.65 kg.	
898.57 kg. of 100 per cent soda ash.	

If the soda ash is 97 per cent instead of 100 per cent, the amount is changed from 898.57 kg. to 926.5 kg. of soda ash for saponification of the fatty acids used. The amount of caustic needed is then:

For Japanese fish oil	28 kg. NaOH
For Kernel oil	72.6 kg. NaOH
For Palm oil	43.7 kg. NaOH
For Peanut oil	14.2 kg. NaOH
	158.5 kg. NaOH

Calculated to a caustic solution of

38°Be., this amounts to 488.1 kg. of NaOH, 38°Be. In practice a little more caustic is used than the amount calculated, and corrected later if necessary.

The procedure is to mix the soda ash with two to three times its weight of water. This amount of water is put in the kettle, brought to boiling and the soda ash shaken in. In this way, complete solution occurs almost immediately. Alternately, a part of the soda ash may be put in the main kettle and a part used in a separate kettle as described above. The mixture of fatty acids is warmed to 100° C. and added to the kettle with mixing, in the form of a thin stream or through a spraying device. Saponification starts at once as evinced by the increase in volume of the contents of the kettle. Addition of fatty acids is interrupted occasionally and the contents of the vat allowed to boil quietly so that the carbon dioxide can escape.

Saponification is quickly completed as shown by the decrease in volume of the reaction mass. The soap tends to be somewhat viscous and thick, and for this reason a small amount of salt is sometimes added to the kettle in the beginning. This changes the physical properties of the soap so that it is partially salted out and CO_2 escapes more readily. If all of the carbonate is put in the kettle, more water can be added or a weakly alkaline solution. This is to make the soap less viscous. If the soap mass seems too thin, more fatty acids and more soda ash can be introduced, both at about the temperature of the kettle. It is advisable during the boiling to keep some cold salt water handy, so that it can be added quickly if there is danger of the kettle boiling over. Boiling is continued until no more free carbon dioxide escapes. This stage is indicated when the mass remains at the same height and no more gas bubbles form on the surface. Also a sample can be removed with a wooden spatula for examination. To see whether all of the carbonate present has reacted, test a sample in a beaker by adding hydrochloric or sulfuric acid. If no bubbles of gas form on addition of acid, the carbonate has reacted and the caustic soda may now be added. If carbonate is still present when caustic is added, the two will react and some of the caustic will be wasted. After the caustic is added, boiling is continued and the process carried out in the usual way for saponification with caustic. Boil for some time after saponification appears to be complete. Add water if necessary to thin the soap down. Salt out and proceed as usual.

After one has tried this method a few times the process goes quickly and falls into a simple routine with no special difficulties.—*Deutsche Parfumerie Ztg.* **23**, 32-5 (1937).

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Milled Toilet Soap

If soap is not completely saponified during the boiling process, rapid cooling and drying is apt to result in a product which becomes mottled on long storage. However, satisfactory soaps can be obtained when working with the cooling press and the roller drier if the charge is thoroughly saponified before salting out and about 0.3 per cent of excess alkali is present before the soap leaves the kettle.

Too much water in the soap tends to develop cracks in the bars. If too dry, the soap likewise tends to crack, but here the cracks are similar to those obtained with an excessive salt content. On no account should the water content of a soap that is too dry, be adjusted merely by adding water. Almost invariably this leads to serious loss of homogeneity. The correct procedure is to blend dry and moist soap chips by repeated thorough mixing in the milling machine.

Defects rarely arise from the perfume. The essential conditions for satisfactory behavior of the perfume in soap is a certain degreee of stability to alkali, atmosphere and moisture. These qualities can be stipulated in the case of a perfume for toilet soaps. The perfume composition should not be too acid. It is advisable to determine the acidity of the composition beforehand and to allow a correspondingly higher proportion of free alkali when the acid value is unduly high. The perfume must be uniformly distributed. An excessive coconut oil content in the fat charge can be responsible for damage to perfume and influence the odor unfavorably in the course of time.

Loss of perfume may occur at the surface of soap cakes perfumed with certain oxidizable substances, including anisaldehyde and benzaldehyde. The odor is restored during washing. Excessive alkalinity causes deterioration of perfume, as does also inadequate fixation. J. Davidsohn and A. Davidsohn. *Soap, Perfumery & Cosmetics* **10**, 40-2 (1937).

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Antioxidants from Soybean

Extracted soybean meal is digested with dilute solutions of organic acids, e. g. two per cent acetic acid, in order to obtain antioxidative compounds. About 10 per cent of material is obtained when the treated meal is heated with methyl alcohol. The portion of the extract soluble in cold acetone (about two per cent of the original meal), is a viscous gum which possesses marked antioxygenic properties. A 0.2 per cent concentration in distilled unsaturated fatty esters markedly retards the oxidation of the esters by air at 97.5° C.

This antioxygenic concentrate is similar in physical and chemical properties to the materials obtained by Olcott and Mattill from the unsaponifiable fractions of wheat-germ, cottonseed and palm oils, and by Dean from linseed oil or linseed oil foots. The yield of the concentrate is many times greater from the extracted oilcake than from the fatty oils themselves. The amount of the compound removed from oilseeds with the oil appears to be not more than two or three per cent of the total amount present in the seed cake. The latter requires a gentle acid treatment of the nature described before the antioxidative materials can be removed. An alcoholic solvent is necessary to effect their removal.

Cellulose is not the original source of the antioxidative compounds. Results so far obtained do not lend much support to the possibility that the latter are derived from organic phosphorus compounds of the nature of lecithins. T. G. Green and T. P. Hilditch. *J. Soc. Chem. Ind.* **56,** 23-6T (1937).

Chrysalis Oil

Chrysalis oil, a possible by-product of the natural silk industry, can be obtained by cold extraction with a solvent, cold pressing or hot pressing. The crude oil is best deodorized by treatment with alkali. By further refining with acid clay, the greater part of the deep color is removed and a light yellow oil is obtained. The last trace of odor can be removed by steam distillation under reduced pressure. This oil is suitable for soap manufacture, especially after hydrogenation. *Shing-Chien Chow. Ind. Research* (China) 5, 475-80.

Stearin in Olive Oil

The addition of 0.1-0.5 per cent of air-blown cacao butter to olive oil keeps the latter free from deposited stearin at a temperature of 2-4° C., even after storage for 4 years at this temperature. The effect is specific for olive oil, and is not possessed by other blown oils or fats. Wm. Clayton, Sydney Back, Robert I. Johnson and James F. Morse. *Nature* **138,** 801 (1936).

Shaving Cream and Blades

When safety razor blades are used with a brushless type of shaving cream they become dull much more quickly than with a brush type of cream. Since oxygen corrosion of steel occurs readily at a pH of 7.2 but is appreciably retarded at a pH of 9.4, the theory was formulated that the dulling of razor blades was due to oxygen corrosion during the shaving process.

With the idea of retarding the corrosion of razor blades during shaving, potassium chromate was added to a commercial brushless shaving cream with a pH of 7.2. The potassium chromate addition did not change the pH value. Actual tests with such treated creams showed that a greater number of shaves were obtained with the chromate-treated shaving cream than with the shaving cream as sold on the market, the increase in the number of shaves varying from 50 to 200 per cent. Shaving creams containing a chromate in an amount sufficient to inhibit oxygen corrosion have been used by several hundred men without a case of skin irritation. R. H. Fash. *Ind. Eng. Chem.* **29,** 68-70 (1937).

Refining and Hydrogenation

The refining and hydrogenation of various grades of sunflower, linseed, mustard, soybean, coriander and corn oil were studied. For oils incapable of hydrogenation after refining with alkalies, the following additional operations of refining are recommended: Preliminary treatment with mineral adsorbents under the conditions of the usual bleaching, and treatment of the neutralized oil with unrubbed nickel catalyst at 130°C., which can be effected by passing oil through a column filled with the adsorbent in the form of balls. E. Botkovskaya and L. Nikolaeva. *Masloboino Zhirovoe Delo* **12,** 394-7.

Emulsifying Agent

An emulsifying and foaming agent is produced by heating lauric acid chloride with benzene in the presence of anhydrous aluminum chloride. After separation of excess benzene, the laurophenone is reduced to dodecylbenzene. The latter is sulfonated with oleum in the presence of ethylene chloride. I. G. Farbenindustrie A.-G. British Patent No. 453,778.

Myristic Acid for Soap

Myristic acid is a hard crystalline fatty acid of a light cream to white color. The technical grade possesses a slight but pleasant odor somewhat resembling that of ionone or sweet peas. Constants are as follows:

	Pure	*Technical*
Purity	100%	80%
Acid number	246.1	240-7
Saponification number	246	244-50
Iodine number (Hanus)	0	4-8
Titre	—	45-7
Melting point	53.8°C.	—
Specific gravity	0.8622 54/4	0.869 50°C.
Color	white	light straw
Odor	none	mild
Weight per gallon	—	about 7¼ lbs.

Technical myristic acid is composed of about 10 per cent of lauric acid, 80 of myristic acid, 5 of palmitic-stearic and 5 of oleic acid.

The uses for myristic acid are numerous. Its properties suggest primarily application in the manufacture of high quality toilet soaps, shampoos, and shaving creams. By the reaction of 50 parts of olive oil and 50 parts of myristic acid with caustic soda and addition of 5 per cent of glycerine, a very smooth soap is prepared with abundant foaming power.

Myristic acid soaps have the quick lather of coconut oil soaps and the creamy foam of palm oil soaps, without the irritating effect on the skin characteristic of coconut oil soaps. Myristic acid alone would produce too brittle a soap. However, it could be mixed with borax, bicarbonate, etc., to give a shampoo powder.

A floating salt-water soap would be another natural development with this fatty acid. Such a bath soap should be based on about 65 per cent anhydrous myristic acid soap. After the formation of the hot soap, blowing air in from very small nozzles gives a proper finish. (Note—Suppliers of myristic acid are Woburn Degreasing Company, Harrison, N. J.) Julius Schaal, N.N. Godbole and Sadgopal. *Soap, Perfumery & Cosmetics* 10, 148-9 (1937).

Products and Processes

Heavy Duty Cleansers

For cleansing fabrics or other articles contaminated with water-insoluble substances such as oils, tar or wax, use is made of tertiary phosphoric esters, e.g., tributyl or tritolyl phosphate. Solutions of these esters, or compositions containing them in association with soaps, powdered materials, etc., may be used. Chemische Fabrik von Heyden A.-G. German Patent No. 639,071.

Cleansing Agents

Polybasic acids are heated with hydroxyalkyl esters or hydroxyalkyl amides of higher aliphatic acids to give alkali-soluble substances useful as cleansing agents. Such products are manufactured from phthalic anhydride and lauryl hydroxyethylamide, stearyl hydroxyethylamide and the monoglyceryl esters of cacao fatty acids. I. G. Farbenind. A.-G. German Patent No. 639,082.

Scouring Sponge

A rubber sponge for scouring is an absorbent scouring device which consists of a body of spongy resilient vulcanized rubber having a porous structure with a large number of minute cells and passages, and having abrasive material dispersed uniformly throughout the walls of the sponge. Abraham Blustein. Canadian Patent No. 364,016.

Higher Alcohol Detergents

Detergents in the form of metallic salts of the sulfuric esters of higher alcohols are prepared by the direct union of aliphatic alcohols with the reaction products of SO_3 and metallic chlorides. The finely ground reaction product of SO_3 and potassium chloride, sodium chloride, ammonium chloride, manganese chloride or nickel chloride may be slowly introduced into a mill containing lauryl alcohol. The temperature is held to 30° C. or less. This product may be worked up by adding water containing sufficient alkali to neutralize the mixture or by treating with hot ethyl alcohol containing alkali, filtering and crystallizing. Procter and Gamble Co. British Patent No. 453,134.

Sulfate Detergents in Bars

Water-soluble salts of the sulfuric esters of aliphatic alcohols or of olefins are converted for domestic use into bars or similarly shaped pieces. Small proportions of ordinary soap may first be mixed with the ester salts. I. G. Farbenind. A.-G. German Patent No. 638,302.

Filled Soap

Sodium silicate is the best filler for soap, from a technical point of view. In such filled soaps, it is essential to have a sufficient amount of soft fats present. The waterglass is mixed with 10-20 per cent of a 20-24° potash solution, in order to give a soap of the proper consistency. The silicate addition hinders development of rancidity and improves the odor of the soap. It should be used in soft water in order to avoid the precipitation of insoluble calcium silicate. *Seifensieder-Ztg.* **64,** 59 (1937).

Gall Soaps for Wool Scouring

The following are suitable formulas for gall soaps for scouring silk and wool:

1. 50 kg. coconut oil
   50 kg. palm kernel oil
   50 kg. caustic soda solution, 38°Bé.
   4 kg. waterglass
   5 kg. gall
2. 100 kg. coconut oil
   50 kg. caustic soda solution, 38°Bé.
   2 kg. gall
   4 kg. ammonia-water
   2 kg. terpentine oil

Gall soaps have both good and bad properties, the good being their non-alkalinity and the bad their instability and rapid development of rancidity and bad odor. The keeping property can be improved by treating gall in the following way: Boil it gently, let cool to about 80° C. and add 5 per cent of ethyl acetate, stirring well. A surface film forms which is removed, and a precipitate settles out, from which the liquid is carefully poured off. The gall used in the above formulas refers to evaporated or concentrated gall. About 5 kg. of evaporated gall are obtained from 30 kg. of fresh oxgall. After evaporation the liquid is filtered through a cloth and 1 kg. of glycerine added to the filtrate, Heinz Zilske. *Seifensieder-Ztg.* **64.** 56 (1937).

Soap Flakes

A good soap flake should be somewhat transparent, should produce a good lather, and possess elasticity. Typical formulas for fats for the soap base are:

1.	Tallow	70%
	Lard	10%
	Coconut oil	15%
2.	Tallow	45%
	Hard fat	25%
	Sesame oil	10%
	Coconut oil	15%
3.	Tallow	30%
	Hard fat	30%
	Castor oil	10%
	Palm kernel oil	15%

A low salt content is particularly desirable in this type of soap. Not less than 0.2 per cent of free alkali should be present in the fresh soap base. This proportion will be reduced during drying, owing to the carbon dioxide in the air. If only about 0.1 per cent is present, it may be taken for granted that the soap leaves the drying cupboard in an "acid blown" condition and the flakes will be subject to rancidity development.

If reluctance is felt to retain the necessary free alkali in the soap-flake base, it is advisable to incorporate a little pale rosin in the fat stock. The quantity need not exceed two per cent of the latter and the resulting rosin soap acts as a protective colloid and prevents rancidity development.

If the soap is not sufficiently flexible to yield elastic flakes it may

be advisable to superfat in the mixer before milling. An unsaponifiable fatty material such as ceresin, lanolin (if of a good color), or petroleum hydrocarbons are suitable for the purpose. G. Knigge. *Soap, Perfumery & Cosmetics* **10,** 63-4 (1937).

Alcohols from Soap Solutions

In a search for raw materials for the preparation of sulfated products, soap solutions were electrolyzed in an effort to obtain high molecular alcohols and olefins. Good yields of products consisting mainly of alcohols and olefins were obtained by electrolyzing a soap solution with graphite anodes. The solution preferably contains appreciable amounts of an inorganic salt and of a low molecular weight alcohol. W. H. McAllister. *Oil & Soap,* **14,** 39-43 (1937).

Soybean Oil Foots

The foots which precipitated in an alcoholic extract of soybean consisted of 11 per cent of water, 16 of soybean oil, 45 of stachyose and 24 of an organic complex. Stachyose was isolated in a crystalline state from the part soluble in 60 per cent alcohol. The organic complex consisted of phosphatides, fatty acids, fats, inorganic acids and glucose. Koji Okano, Iwao Ohara and Jiro Kato. J. Agr. *Chem. Soc. Japan* **12,** 714-20.

Refined Coconut Oil

Purified coconut oil may appear turbid even after the original impurities have been removed by bleaching and filtration processes. The causes may be the presence of water, traces of soap or of solid fats. Water can be removed by drying the oil. Soap impurities are taken out by washing with water which has been heated almost to the boiling point. Solid fats are removed by filtration at a temperature low enough so that fat particles will be firmly solid but the rest of the oil will still be liquid. *Seifensieder-Ztg.* **64,** 46 (1937).

Enzymes as Detergent Aids

Enzymes may find some use as detergent aids in breaking down an organic type of soil. Enzymes are not injurious even to the most sensitive textiles. Their probable application will be in laundries for washing rayon, but it is improbable that they will be applied in household washing. F. Ohl. *Allgem. Oel- u. Fett-Ztg.* **33,** 527-31.

Washing Agent

A washing agent is prepared by esterifying a polybasic phosphoric or boric acid with an aliphatic alcohol and a polyhydric alcohol. For example, boric acid is esterified with lauryl alcohol and then with glycol. This may then be sulfonated. N. V. Chemische Fabriek "Servo" and Meindert D. Rozenbroek. British Patent No. 452,508.

Shaving Combination

A shaving brush consists of bristles set in a backing of suitable binding material with an aperture through the backing to a cylindrical handle. This has an opening along one side and a tube of shaving soap is fitted into it. Moel Statham. Canadian Patent No. 364,545.

Water in Bleaching Earths

Addition of water increases the bleaching effect of bleaching earths on oils. When rapeseed oil samples were treated with 0, 20, 40 and 50 per cent of water and then bleached with 6 per cent of bleaching earth, the bleaching effect was 70.8, 79.3, 80.3 and 80.2 per cent respectively. There appears to be an optimum amount of water which gives the best results with each oil. Data on rapeseed oil bleached with 10 per cent of bleaching earth and with 10 per cent of water present compared with no water present, show that the increase in bleaching action due to the water varies from 1.5 to 83.5 per cent, depending on the earth used. Free fatty acids do not increase in amount in this process. A. Berczeller and E. Erdheim. *Ole, Fette, Wachse, Seife, Kosmetik No.* **15,** 1-3 (1936).

Bottle-Washing Solutions

Solutions for washing bottles usually contain mixtures of caustic soda, soda ash and trisodium phosphate. The hydrometer is of no value in testing such solutions. Total alkalinity determination does not distinguish caustic from noncaustic alkali and the latter aids in cleansing. pH Determination is unsuitable. The best method of testing is by differential titration. C. M. Moore. *Brewing Age* **4,** No. 2, 5-7.

Hydrogenated Fatty Acids

Whole oil fatty acids are hardened at 90-100° C. in the presence of nickel formate. The oil may first be freed from dirt, mucilaginous substances or other impurities. Metallgesellschaft, A.-G. and Otto Brücke. British Patent No. 452,887.

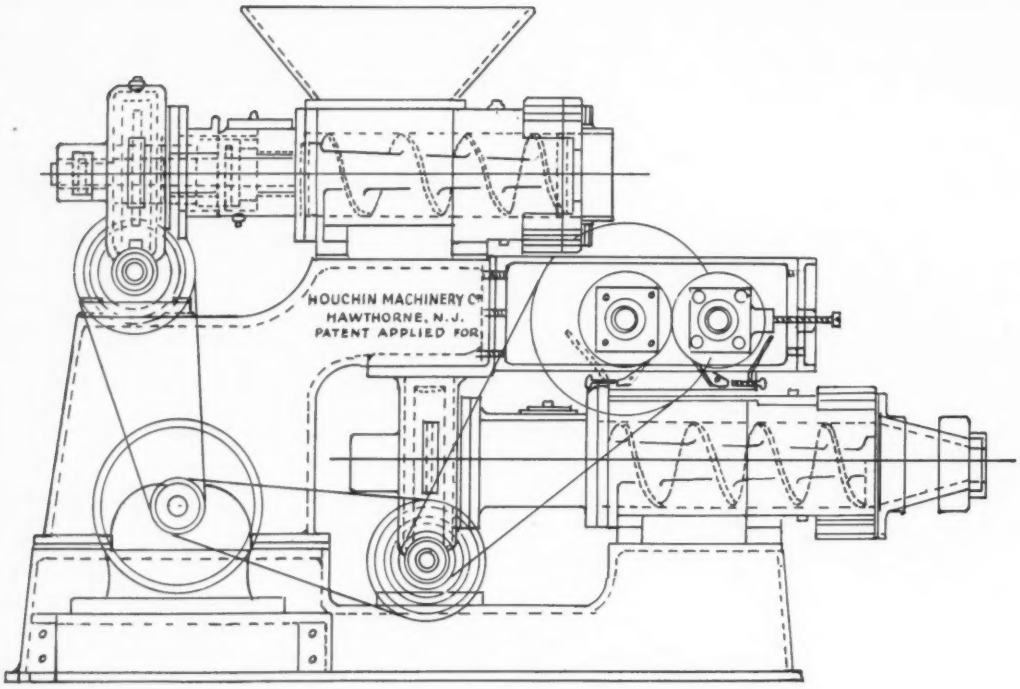
Bleaching Sulfur Oils

Oils purified by treatment with sulfuric acid are difficult to bleach, especially the dark colored ones high in fatty acids. Methods which may be applied are treatment with a suitable adsorptive earth at 80-90° C. or with hydrogen peroxide at room or slightly elevated temperatures. In the latter case 1-3 per cent of 30 volume-per cent hydrogen peroxide is used. The mixture is stirred for about half an hour and then let stand overnight. The next day it is stirred for about a quarter of an hour, warmed to 50° C. A combination of these two methods may be desirable. *Seifensieder-Ztg.* **64,** 58 (1937).

Reuse of Bleaching Earth

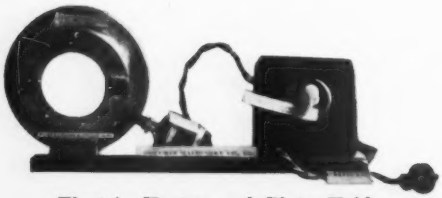
A reagent recovered after use in one step in the refining of fats and oils is used again directly in another step of the process. Thus, bleaching earth recovered from a bleaching treatment may be used with an alkali solution in a deacidification treatment. Alfred Eisenstein. Austrian Patent No. 147,702.

HOUCHIN MACHINERY CO., INC. HAWTHORNE, N. J.



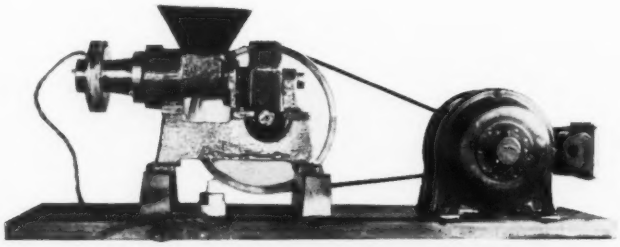
COMBINATION PLODDERS
With Double Head and Milling Attachment With Motor

Soap passing through the first time produces ribbons of soap. Second passing produces a fine finished, well compressed bar of Soap. For the second passing, remove Short Head on Second Plodder, bring Long Finishing Head in place. This Head is fitted with our Electric Heater and Plate Holder. A small stream of water passing through Plodder Cylinders and Rolls of Mill keeps the Soap cool, preventing the Soap from blistering. There is no dropping of Soap. The machine is very easily cleaned. It is excellent for short runs of Soap and saves Horse-Power.



Electric Heater and Plate Holder

By using this unit instead of steam, gas or lamp a uniform heat can be maintained. No more blistered soap. Made to fit all Plodders.



Laboratory Plodder, complete with Motor, Electric Heater, and Plate Holder.

Hard Water Resistance

Synthetic organic detergents which are more or less resistant to hard water are fundamentally different in their action from sodium metaphosphate, which is inorganic. Sulfated fatty alcohols and fatty acid condensation products, such as the Gardinols and Igepons respectively, act as typical protective colloids in preventing the precipitation of lime soaps, and are therefore used in a quantity proportional to the amount of soap present. Metaphosphates, on the contrary, react stoichiometrically with the substances in the water responsible for hardness, and are used in sufficient quantity to combine completely by chemical reaction with them.

The behavior of metaphosphates in the absence of soap with substances which produce hardness in water, can be followed by a series of turbidity measurements with waters of increasing hardness. It is found that additions up to about one-third of the quantity of metaphosphate theoretically necessary to remove the hardness completely, cause turbidity or flocculation, which disappears again on adding a further quantity of metaphosphate. It is suggested that insoluble calcium-calcium metaphosphate is first formed and is then converted on further addition of sodium metaphosphate into sodium-calcium metaphosphate, the calcium all going into a negative complexion. On warming, particularly on boiling, turbidity is re-developed owing to conversion of the meta- to the ortho-phosphate.

Photometric examination of solutions of soaps in hard water in the presence of increasing quantities of metaphosphate and of increasing quantities of organic dispersing agents, indicates that metaphosphate produces at first a slow, and then a rapid decrease in turbidity; organic protective colloids produce a more gradual decrease in turbidity. The activity of metaphosphate decreases on keeping the solution for a prolonged period, or on heating it. Experiments with freshly precipitated and dry calcium stearate show that metaphosphate does not disperse the lime soap, but combines chemically with it.

In soap-free liquors containing alkali and metaphosphate, the latter does not exert a detergent action, whereas organic protective colloids manifest their detergent properties fully in the presence of alkalies, and in hard water. K. Lindner. *Melliand Textilber.* **17,** 861-3, 935-8 (1936); *J. Soc. Dyers & Colourists* **53,** 67-8 (1937).

X-Ray Analysis

All crystals consist of identical and identically oriented molecules or groups of molecules situated at the points of a space lattice. In general, an alteration in the composition of a molecule will affect the linear dimensions of the lattice in three directions, so that crystallographic identification of a substance usually requires a more or less complete determination of the lattice. With the aliphatic compounds, however, it is often possible to alter the molecule and the lattice in one dimension only, as for instance, by the addition of two CH_2 groups to the chain of an acid. The unit cell of stearic acid differs only from that of palmitic acid by an increase in length of 4.6 A. to the long side (1 A. unit equals 10^{-8} cm.). It is therefore possible to identify a member of a homologous series by a single crystal measurement, and the habit of aliphatic crystals makes this a particularly easy measurement to carry out. S. H. Piper. *J. Soc. Chem. Ind.* **56,** 61-6T (1937).

Refining Oils with Dilute Lyes

A caustic solution of 2-7°Be. is recommended in the caustic refining process. Oils which form a persistent emulsion that will not break with the usual salt treatment must be treated with a small amount of sulfuric acid to break the emulsion. The foots are then separated and deacidified. Fatty acids are recovered from the diluted foots containing the washings, by acidifying with sulfuric acid. This process is claimed to be economical for high-priced oils which are slightly acid. It is admitted that the use of more concentrated lyes is simpler and cheaper and should be used for the poorer grades and less expensive oils. F. Wittka. *Allgem. Oel- u. Fett-Ztg.* **33,** 563-9.

Soap Cream

A process for making a soap cream includes the step of making more than half the total real soap in the cream from oils that have been hydrogenated so as to contain more than 45 per cent of saturated fatty acids having at least 18 carbon atoms per molecule, oils of the coconut oil class being excluded. As an example, a soap cream is made from 35.2 parts of the fatty acids from cottonseed oil hydrogenated to an iodine value of less than 10, 4.8 parts of coconut oil, 17.6 parts of 42.2°Be. potassium hydroxide solution, 2.8 parts of 42.2°Be. sodium hydroxide solution, and 39.5 parts of water. Procter & Gamble Co. British Patent No. 454,660.

Brushless Shave Cream

A brushless shaving cream is prepared by emulsifying commercial stearic acid in water with the aid of a soluble salt of a sulfonated or sulfated carboxyl-free compound having an aliphatic radical with 10-18 carbon atoms in the molecule. The stearic acid may be replaced in part by hydrogenated oils, waxes or mineral or fatty oils. True sulfonates are preferably used, but if sulfuric esters are employed, a weakly alkaline substance such as borax, sodium bicarbonate, etc. may be added. Procter & Gamble Co. British Patent No. 454,658.

New Source of Oil

The plant, *Evonymus verrucosa*, which grows wild throughout the Azov Black Sea region, contains 50 per cent of an oil suitable in the crude state for soap making and the paint industry. Freed from a yellow pigment and some bitterness by hydrogenation, it can be used as an edible oil. V. Lykov. *Masloboino Zhirovoe Delo* **12,** 401-2.

Darkening of Soap

Alkali phosphates in an amount of 1-20 per cent by weight, are incorporated in hard or soft soaps from tallow to prevent oxidation and darkening. A. Hellström. Swedish Patent No. 87,675.

Free Caustic Alkali

The determination of free caustic alkali in soap may be made by the method of direct titration without filtration, in the absence of much carbonate. The method is recommended only for sodium soaps and in the absence of more than about 0.4 per cent of total free alkali calculated as Na_2O. Boil 100 cc. of alcohol to remove carbon dioxide. Add 0.5 cc. of 0.5 per cent phenolphthalein solution and neutralize at 70° C. with 0.1 *N* acid or alkali. Add 10 grams of soap sample in shavings or powder form and heat until dissolved. Cool to 70° C. and titrate at that temperature with 0.1 *N* sulfuric acid. *Analyst* **62,** 39 (1937).

Geranium Oil

(*From Page* 33)

floral odors and is also employed with phenyl ethyl alcohol as the basis of rose compounds for perfuming soaps. On oxidation, geraniol yields citral. Pure geraniol has a specific gravity of 0.886 and a boiling-point of 230° C.

A number of esters of geraniol are widely used in commerce. Among these are the following:

Geranyl acetate—This occurs naturally in a number of volatile oils, such as French lavender, sassafras leaves, lemon, neroli, Ceylon citronella, and others. It may be prepared synthetically by heating together geraniol, acetic anhydride and sodium acetate. Geranyl acetate is a sweet fragrant liquid which is used in some types of synthetic rose otto and as a sweetening agent in all types of perfumes. It has a specific gravity of 0.910 and a boiling-point of 243° C. It is exceedingly stable in soaps and creams.

Geranyl benzoate is a sweet fragrant liquid which is used to modify and fix rose odors.

Geranyl butyrate has a fruity rose odor. It is used to reduce the price of Algerian oils and for compounding special artificial rose odors. It might occur naturally but it is prepared commercially by synthesis from geraniol and anhydrous butyric acid. It is used by flavor manufacturers in apple and pear flavors.

Geranyl formate is not as stable as these other esters, but is used in small quantities in rose and neroli odors for creams and toilet waters. It is prepared commercially by synthesis from geraniol and anhydrous formic acid. It has a sweet fresh rose-leaf odor.

Other derivatives of geraniol such as geranyl iso-butyrate, geranyl phenylacetate, geranyl propionate, geranyl tiglate, and geranyl acetate are used more or less as modifiers in particular rose compounds.

Hydrocarbons from Glycerides

Oils such as olive, peanut, palm, cabbage palm, corn, cottonseed and others are transformed to hydrocarbons by heating them, preferably under vacuum, in the presence of calcium or barium oxide with the addition of calcium carbide or calcium silicide. The deoxygenation is followed immediately by a cracking operation to increase the fraction of light liquid hydrocarbons obtained. Henri Lavoisier. French Patent No. 801,991.

One-Time Soap Tablets

Single-use washing tablets are formed from soap and wood pulp from which a part of the slimy matter has been removed. Sawdust may be added. Friedrich Werth. British Patent No. 454,693.

Bath Salts

(*From Page* 27)

In formulation they are quite like effervescent bath salts but their manufacture is an art rather than a science what with the preparation of the granulation or the pre-compression, the proper lubricant, etc. I spent much time to make satisfactory ones only to find they enjoy very limited sale indeed.

In use, bath tablets are convenient since they "measure the dose." Perhaps this is one reason for their limited sale. For example, a container holding a dozen tablets means twelve baths to the bather, whereas a like amount non-compressed may look like a much larger number to the average user. Another reason may be the fact that quite a few offerings have been only passing fair, even disappointing in use.

BATH milks are indeed luxuries hardly intended for general use but designed for the more fastidious willing to pay for their fastidiousness and their abhorrence of the commonplace. The milks usually go to market in powdered form and untinted and may contain one of the water softeners and may or may not contain any milk solids. They may contain either powdered soap or sulfonated fatty alcohols to make the water somewhat sudsy and plenty of high-grade perfume to scent them. Milkiness is ordinarily imparted to the water by well dispersed finely powdered zinc oxide or titanium dioxide, and not by milk solids.

Bath oils are selling in constantly larger amounts at department store toilet goods counters and, according to some buyers, are making great inroads on the sale of bath salts. In chains and independent drug stores, the demand is practically nil and some do not stock even a single brand. These oils do have one advantage in that they may be sprinkled in the tub or rubbed lightly and sparingly on the body just prior to the shower.

Whereas a wide range of odors is used to scent bath salts, the predominant, if not almost exclusive odor, for oils is pine needle. Many are untinted, but bath oil has been examined that is very high in fluorcein. In composition they vary appreciably. As a basis for formulation, a 50-50 water or alcoholic solution of sulfonated castor and/or olive oil with up to 20 per cent of perfume oil, with or without color, is suggested.

New Equipment

IF YOU want additional information on any of the items described below or if you want any of the bulletins, catalogs, etc., write to the MacNair-Dorland Co., Inc., 254 West 31st St., New York, mentioning the number of the item.

330—Acid-proof Floor

Flexrock Co., Philadelphia, has announced development of a new acid-resistant flooring preparation which will be offered under the name "Rockflux." It is a combination of Diabase and Quartz and may be used over old or new concrete floors at a thickness of one inch. It will stand a pressure of approximately 42,000 pounds per square inch.

Publications

331—Air Conditioning

Consolidated Air Conditioning Corp., New York, has just issued a booklet "Consolidated Odor Absorbers in Air Conditioning." The booklet outlines quite completely the costs of operating an air conditioning system. Copies are available.

332—Filling Machines

Stokes & Smith Co., Philadelphia, has just issued a folder describing part of its line of packaging machinery. Copies offered.

333—Moth Preventives

White Tar Co., Kearny, N. J., has just released an eight-page folder in color, showing the complete line of moth prevention products it offers. Among those illustrated are moth crystals, blocks, sulfur candles, garment bags, storage chests, etc. Copies of the folder will be mailed on request.

334—Industrial Hoists

Harnischfeger Corp., Milwaukee, has just issued a new bulletin describing its line of "P. & H." hoists. Application of the hoists is illustrated and the bulletin lists ratings and operating ranges for various items in the line.

335—Deodorized Base

O'Connor & Kremp, New York, have just issued a new folder listing some reminders and facts about "NonOdr," their deodorized base for liquid insecticides. They point to objectionable odor as the greatest single drawback today in the sale of liquid household insecticides. Copies available.

336—Fuld Folder

Fuld Bros., Baltimore, have just issued a novel two-color folder, publicizing their sanitary supply business, and outlining the type service they offer to concerns in the janitor supply and private label fields. Copies of the folder will be mailed on request.

337—M. M. & R. Mailer

Magnus, Mabee & Reynard, Inc., New York, have just issued a unique and attractive mailing piece, describing various specialties in their complete line of essential oils and perfuming materials. Copies available.

338—Fly Spray Odor

Aromatic Products, Inc., New York, in the latest issue of its house organ, "Lab-scents," gives full particulars about "Vitacene" a new fly spray odor. Names are still being added to the mailing list for the Aromatic Products house organ upon receipt of requests.

New Soap Abrasive Needed

Ash from the residue of waste rice hulls, formerly used in Sacramento, Calif., as an abrasive material in various hard soaps, will no longer be available in the future. To comply with an injunction issued at the request of Sacramentans whose homes were being covered with blown ash from former open pyres, a huge incinerator must be built and operated to dispose of the waste rice hulls. This destroys a once-profitable waste product business, according to G. A. Nunn, principal buyer and distributor. The ash produced by the incinerator, Nunn declares, is unsuitable for soap use.

Gleason With Turner

Edward J. Gleason, Jr., has just joined the sales staff of Jos. Turner & Co., Ridgefield, N. J. He will cover the metropolitan area, working out of the Turner New York office. Mr. Gleason was formerly in the chemical business for himself.

To Represent Naugatuck

Charles J. Horney, associated with the perfuming materials business for a number of years, has just organized his own company at 1313 North Vermont Ave., Los Angeles. He will offer the aromatic products of Naugatuck Chemical and its affiliates Bruno Court Grasse, France, Louis Bornand Paris, France and Compagnie Africaine Des Plantes A Parfum (CAPP), Casablanca, Morocco.

Humburg With Danco

C. Fred Humburg has recently joined the staff of Gerard J. Danco, Inc., New York essential oil and chemical house. Mr. Humburg has been well known in the trade for over thirty-five years.

Perfumers Hear Hall

At the March 2nd meeting of the Chicago Perfumery, Soap and Extract Association, held at the Lake Shore Athletic Club, Robert D. Hall, recently a student at the University of Alaska, gave a very interesting talk, supplemented by moving pictures, regarding life in Alaska. The business meeting prior to Mr. Hall's talk was given over to consideration of the legislative problems confronting the industry.

New Patents

Conducted by

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Complete copies of any patents or trade-mark registration reported below may be obtained by sending 25c for each copy desired to Lancaster, Allwine and Rommel. Any inquiries relating to Patent or Trade-Mark Law will also be freely answered by these attorneys.

No. 2,070,308, Method of making Soap Particles, Patented February 9, 1937, by Henry J. Nicholls, Minneapolis, assignor to Sunlite Co., Minneapolis. The method of treating solid soap, consisting of mechanically subdividing pieces of soap into smaller pieces and simultaneously keeping the sub-divided material surrounded by an atmosphere permeated with ozone whereby new surfaces of the material created by the sub-division are in intimate contact with the atmosphere at the instant the new surfaces are created so as to absorb ozone.

No. 2,070,908, Dry Cleaning Compositions, Patented February 16, 1937, by Arthur Andrew Levine, Niagara Falls, N. Y., assignor to E. I. du Pont de Nemours and Co., Wilmington. An odorless dry cleaning composition consisting of trichlorethylene which contains in solution about 1% of a soap composition consisting substantially of 108 parts of an oleic acid-sodium soap, 147 parts of trichlorethylene and 70 parts of triethylene glycol, the proportions being by weight.

No. 2,071,459, Process of purifying Polyglycerol esters, Patented February 23, 1937, by Reginald Furness, Warrington, England, assignor to Lever Brothers, Ltd., Port Sunlight, England. A process for producing purified or concentrated substantially water-soluble polyglycerol fatty-acid esters which contain unesterified hydroxyl groups and possess detergent and lathering properties, comprising mixing crude esters containing polyglycerol residue with an aqueous solution of sodium sulfate, agitating the mixture to cause the polyglycerol residue to dissolve in the aqueous solution, and separating the latter from the undissolved ester.

No. 2,071,512, Washing and Cleansing Composition, Patended February 23, 1937, by Carleton Ellis, Montclair, N. J., assignor to Standard Oil Development Co., Wilmington. A cleansing material substantially free of fatty acid soaps comprising water-soluble mineral-oil acid sludge sulfonates and an alkali salt of an alcohol sulfate detergent, the latter being characterized by consisting of a sulfuric acid group and a hydrocarbon group containing at least 16 carbon atoms and having a poor solubility in water, the proportion of water-soluble mineral-oil sludge sulfonates being sufficient to increase the solubility of the latescent detergent in water.

No. 2,071,094, Deodorant, Patented February 16, 1937, by George Paul Vincent, Niagara Falls, N. Y., assignor to Mathieson Alkali Works, New York. A deodorizing composition comprising a briquetted dry mixture of a soluble chlorite, an acidifying agent and a filler of lower solubility whereby disintegration of the briquets when in contact with water is retarded.

No. 2,071,484, Insect Repellent and Exterminator, Patented February 23, 1937, by George G. Wittwer, Chappaqua, and Mahlon H. Beakes, Larchmont, N. Y., assignors to American Cyanamid Co., New York. An insecticidal composition comprising a diaryl substituted guanidine, pyrethrum extract, and a fatty acid, in solution in a non-aqueous solvent.

New Carpet Cleaner

Shampoo methods are well known for the cleaning of carpets and similar heavy textile materials, but, in general, they have the disadvantage that stains caused by residues of the cleansing agents are left on the materials. In a new process recently evolved by Electrolux, Ltd., in England, this disadvantage is eliminated by the use of an aqueous solution of a soap paste, the latter having an oleic acid or oleic acid derivative base. The solution is sprayed over the textile material by means of a vacuum cleaner used as a blower, and then removed by wiping. The preferred cleansing agent, according to the specification, is a solution in water of the potassium salts of sulfonated oleic acid. The paste itself is made up of 70 per cent of the dry salts and 30 per cent water. The actual spraying solution is made up of a small teaspoonful of the paste in about 500 c.c. of water. No visible residue is found on the material after cleaning, as the oleic acid derivatives employed are transparent. Sodium and ammonium salts can be used in place of those of potassium.

Oil Refining Treatment

Refined fatty oils or fats are treated during the deodorizing step with a crude fatty oil to prevent oxidation. Alfred Eisenstein. Austrian Patent No. 147,701.

Peanut Oil in Olive Oil

The Bellier test for detecting peanut oil in olive oil is modified by adding hydrochloric acid until the reaction is definitely red to methyl red. The solution is cooled to 9° C. for the turbidity test, when 5 per cent of peanut oil is detected with certainty. The clouding point for various oils is as follows:

	Clouding Point
Peanut (13 samples)	39.0-40.0°C.
Rapeseed	22.5
Sesame	15
Cottonseed	13
Olive kernel	10
Olive oil	4-8.5 (2 exceptions)
Maize	7.5
Teaseed A	9.5
Teaseed B	2.5
Almond	1.0
Apricot kernel	—0.5 to —8.5

Norman Evers. *Analyst* 62, 96-100 (1937).

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. . . 'No Kerosene Breath' *sold us on* DEO-BASE Reg. U. S. Pat. Off. *—and now it sells our entire line of household sprays to our c stomers."*

Freedom from kerosene odor is only one of many reasons why the Insecticide Industry has endorsed Deo-Base since 1931. Stability, balanced fractionation, sparkling clarity and assurance against staining are some others.

Get set for *your* season with DEO-BASE Reg. U. S. Pat. Off. — the modern base for liquid insecticides. It enables you to give your customers what they want—and more.

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Got 'em each and every one;
Oh how tough would be his lot
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A DEPENDABLE gun has a lot to do with a big game hunter's success.

Dependable product ingredients have a lot to do with an insecticide manufacturer's sales and profits.

Dependability is a constant characteristic of Sherwood's Di-Bug Pyrethrum Extract and Powder.

DI-BUG PYRETHRUM EXTRACTS are made with Spraysene Odorless Base. They are sold on the following guaranteed minimum Pyrethrin Contents:

No. 30 (mix 1:30)	3.6% Pyrethrin
No. 20 (mix 1:20)	2.4% Pyrethrin
No. 5 (mix 1:4)	0.6% Pyrethrin

DI-BUG PYRETHRUM POWDER (Finest Japanese Impalpable) is sold on a guaranteed minimum Pyrethrin Content of 0.9%.

ALL DI-BUG PYRETHRUM PRODUCTS are tested by Chemical Assay (Dr. Seil's Method) and Biologically by the new Evaluation Method adopted by the National Association of Insecticide and Disinfectant Manufacturers, Inc.

Di-Bug Pyrethrum Products . . . quality that never varies . . . killing power that never fails

Write today for literature and additional information.

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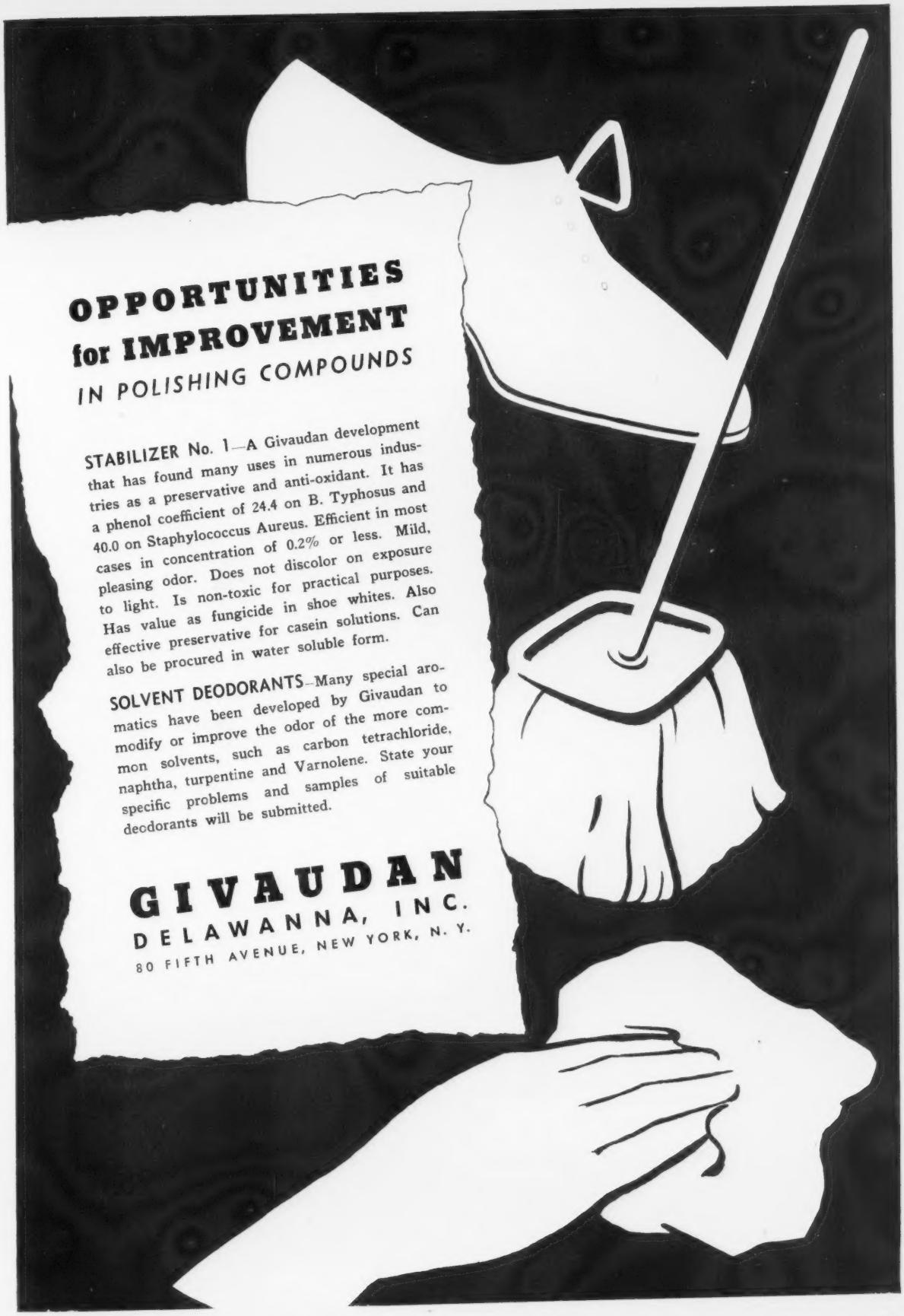
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IN POLISHING COMPOUNDS
STABILIZER No. 1—A Givaudan development that has found many uses in numerous industries as a preservative and anti-oxidant. It has a phenol coefficient of 24.4 on B. Typhosus and 40.0 on Staphylococcus Aureus. Efficient in most cases in concentration of 0.2% or less. Mild, pleasing odor. Does not discolor on exposure to light. Is non-toxic for practical purposes. Has value as fungicide in shoe whites. Also effective preservative for casein solutions. Can also be procured in water soluble form.
SOLVENT DEODORANTS—Many special aromatics have been developed by Givaudan to modify or improve the odor of the more common solvents, such as carbon tetrachloride, naphtha, turpentine and Varnolene. State your specific problems and samples of suitable deodorants will be submitted.
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CHEMICALS INDISPENSABLE TO INDUSTRY

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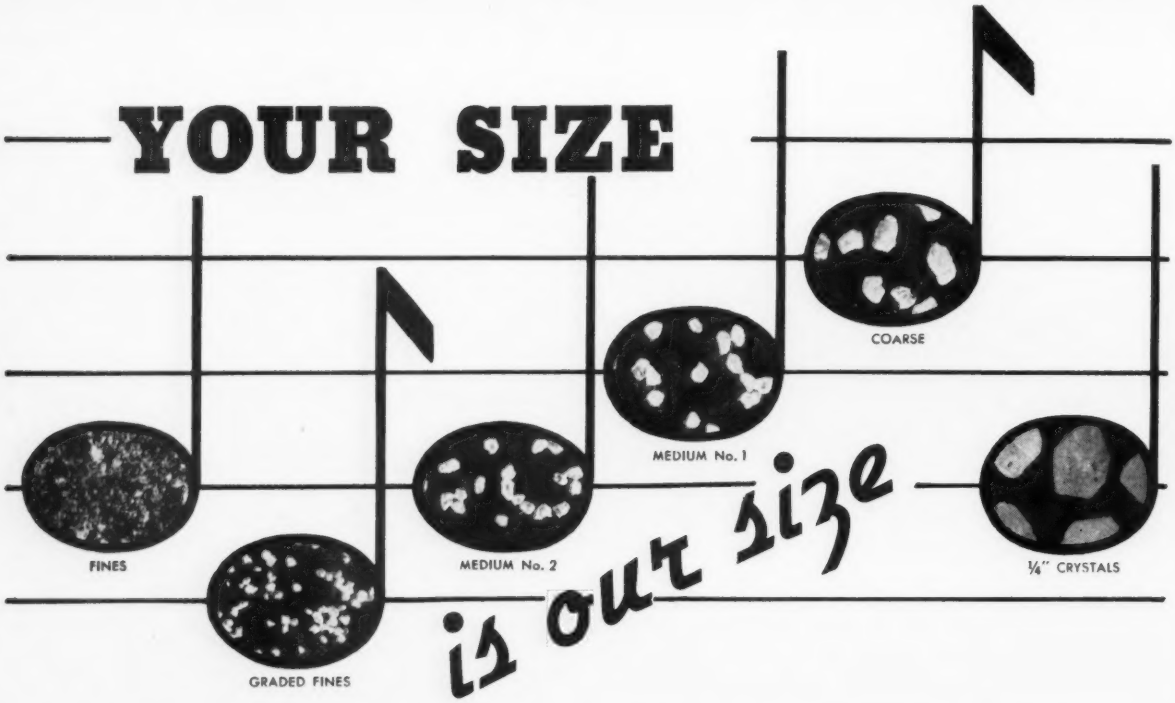

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Whatever size paradichlorbenzene seems to suit your production or product requirements you can get it from Dow.

Six sizes—from fines to ¼-inch crystals—are regularly manufactured, meeting most disinfectant or moth preventative producers' needs. But, beyond these, Dow is prepared to produce special sizes on order.

Paradow is pure—full strength—and dependable. It carries the dependability you naturally expect of any Dow product.

Let us tell you more about Paradow—send you samples or quote on your requirements. There's no obligation.

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OTHER DOW CHEMICALS

Coumarin — Methyl Salicylate — Methyl Anthranilate — Phenol — Dowicides (Disinfectants, Fungicides) — Caustic Soda — Carbon Tetrachloride — Ethylene Dichloride — Propylene Dichloride — Orthodichlorbenzene and over 300 others.

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BUT gas masks and fly sprays do not go hand-in-hand!

For many years the Felton Chemical Company has been engaged in producing fly spray perfumes and neutralizers that actually *sell* merchandise through correct nose appeal. The entire KEREX line represents the most modern, most effective means of building lasting sales volume and consumer demand. Put it to work for you without delay!

Use Felton Fly Spray Perfumes & Neutralizers To Improve Your Products!

KEREX L'ORIENT
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VITAFLOR No. 758
A powerful neutralizer

WRITE FOR SAMPLES NOW!

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THE killing power of every lot of Pyrethrol 20 is checked and proved by actual spraying tests on live insects scientifically bred in the Insectary of McCormick's Laboratories (shown in illustration). Both the "Peet-Grady" and the new "Campbell Turntable" Methods are used.

Pyrethrol 20 is a standardized Pyrethrum concentrate with a guaranteed minimum content of 2.0 grams of pyrethrin per 100 cc.—equivalent to 2.4% pyrethrins. The quality of ingredients used in Pyrethrol 20 is verified at all times by chemical assay in our testing laboratories—which are the most complete in the insecticide industry.

Our recommendations for the use of Pyrethrol 20 are based upon actual performance in extensive field tests. For further information about its use in the manufacture of liquid insecticides, write: The McCormick Sales Co., Baltimore, Md. In Canada: McCormick & Co. (Canada) Ltd., 454 King Street, West, Toronto, Canada.

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3 RINGS at the CIRCUS

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The Big Tent ticket-wagon makes a 3-time sale in One—but at the store the sale is ONE from maybe SEVEN brands.

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"NATIONAL" puts design styling and "product dress" into a front row display of product Value.

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Call us into Your Packaging plans

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A Word to the Wise

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DISINFECTANTS

You insist that your milk be
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It's just as important that your disinfectant be
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There's no guessing, no worrying
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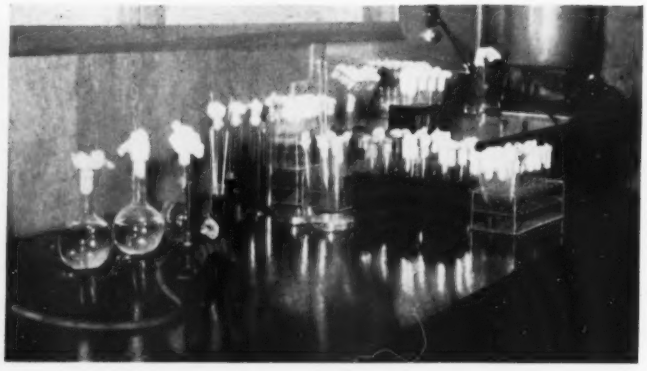

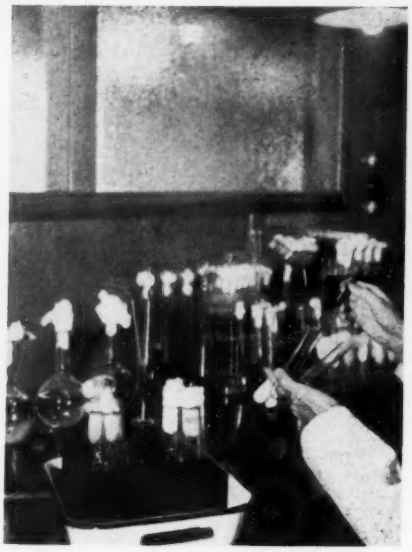

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All products are manufactured by us on an extensive scale from ingredients which are subjected to the most exacting chemical tests. No adulterants of any kind are used. Price is made secondary to quality, and we warrant every material to be exactly as represented, and to give the maximum of satisfaction.

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SANITARY PRODUCTS

A Section of SOAP

Official Publication, Nat'l. Assn. of Insecticide & Disinfectant Manufacturers

FACTORY inspection by employes of the Department of Agriculture is the chief objection which one well-known manufacturer has to the new Copeland Food, Drug and Cosmetics Bill. He sees in unrestricted factory inspection, as provided for in Section 27 of the Bill, the threat of a future nuisance which may become increasingly annoying and disagreeable to manufacturers. Where at present, there is no legal right of factory inspection by officers of the Department of Agriculture,—although undoubtedly a great majority of manufacturers permit inspections under the impression that such are mandatory upon them,—the new bill definitely gives the right of inspection in providing for its enforcement. This manufacturer calls upon the sanitary products industry to fight this feature of the Copeland Bill as only a short step from the point where it will be operating practically under a license from the Government.

THE State of New York is accused by a well-known manufacturer of issuing a specification for disinfectant which was "obviously drawn to prevent bidding rather than to encourage it." A long, involved specification, designed to confuse the bidder, it is stated, was issued so that the product of one firm only could meet the requirements. In fact, it would be difficult for any manufacturer, except the maker of the product in question, to know exactly what to supply under this specification.

This is not the first time that specifications have been dictated by political rather than scientific considerations, if this be the case. In fact, specifications for everything from fire-engines to tooth-picks have been used by politicians for years to guide business into the channels of their friends. In some cases, weird specifications are due to ignorance of those who draw them up, or to poor advice. But in too many instances, we fear, they are deliberately aimed to shut the door to all but one or two favored suppliers.

A sad commentary on the "Great State of New York"—it is all of this if our suspicions are correct. Even all the way down to small items such as disinfectants, there appears to be a political thumb-print in the pie. And from the evidence which this manufacturer from a distant state sends us,—backed by his wide experience of many years in the manufacture and sale of disinfectants,—we are inclined to agree with him.

IN a small town in North Carolina, we picked up a can of powdered insecticide manufactured by a small firm in St. Louis and bearing the label of a local distributor. The product was labeled "pure insect powder." On the reverse side of the label appeared a statement of the ingredients,—sodium fluoride, borax, and inert matter. The product was tinted the usual blue color of sodium fluoride.

Of course, for anybody who had been in the insecticide business more than two weeks, the misbranding of this product was obvious at first glance. The fact that it was manufactured by a concern which should have known better, adds to the element of astonishment. They must know,—or at least, should know, that only straight pyrethrum powder may be labeled "insect powder." The terms, according to the regulations of the Department of Agriculture, are synonymous,—and quite obviously, the product in question had no right to be labeled "insect powder" inasmuch as it was a fluoride-borax mixture.

Is it any wonder that newspapers throughout the country are constantly making the error of reporting poisonings due to "insect powder" when a manufacturer right in the industry misbrands a product in this way?

Germicidal Power of Oil Sprays

A new type of suggested practical test to determine the germicidal efficiency of a sprayed compound

By Jack C. Varley

Baird & McGuire, Inc.

IN a discussion some time ago with a large manufacturer of poultry remedies, the question was asked whether or not it was possible to determine the disinfecting value of a compound which is not water soluble. The compound in question was recommended for use in poultry houses, barns, hatcheries, etc. as a lice and insect killer, as well as a remedy for bronchial colds in poultry. The manufacturer felt that this compound if properly applied would also have a disinfecting value.*

The work described here was done with the thought in mind that the results would be of interest and help to manufacturers of disinfectants, stock and poultry remedies, and also to chemists and bacteriologists. There seems to be at the present time a trend towards the development of practical methods of testing antiseptics and germicides.

There is need for a brief explanation on several points of interest before going into the results of this work. At the present time there is no official method for the testing of compounds such as oil sprays. These sprays are not water-soluble compounds and therefore cannot be tested by the F.D.A. Method for disinfectants. However, the directions for use of these materials sometimes state that they act as disinfectants when sprayed in a heavy film over the objects to be treated. The object of the work done then was to determine whether or not a specific oil spray actually did possess germicidal properties when used as directed.

It was necessary to devise or create a method of test which would closely approximate actual conditions under which oil sprays would be used. At the same time, the method must be accurate so that check tests could be run and also to show the relative strength of compounds similar in composition to the oil spray tested. Furthermore, the technique employed and apparatus used had to be available to anyone desiring to repeat or check these tests.

There were five series of tests made, including a checking test. Of these, three are original methods, never before used to the best of the writer's knowledge. Each series of tests will be explained in detail. Some of the tests made were checked by an outside laboratory in order to avoid possible errors.

Wet Filter-Paper Tests

The wet filter-paper method[1] is a germicidal test rather than a test of inhibitory properties. It is used when the substance to be tested is not soluble or completely miscible with water, or for substances that are to be used in high concentration, such as soaps, tooth pastes, suppositories, dyes, dusting powders, salves, and ointments. If the substance is to be used in the body cavities the test is carried out at 37° C.; if not, the test is carried out at 20°, or at room temperature, and the temperature is recorded.

No. 2 Whatman filter-paper is cut into pieces about 0.5 cm. square, and sterilized in a plugged test tube at temperatures below 170° C. to prevent charring. A suitable number of the paper squares are then impregnated with *Staphylococcus aureus*, or other test organisms, by immersion in a 24-hour broth culture of the organism. The culture must have the standard resistance required for phenol coefficient testing. The wet inoculated squares are then placed in the liquid or solid substances to be tested in such a way as to be completely covered and in intimate contact. At the end of 5 minutes, 10 minutes, 15 minutes, or 1 hour, or any other desired length of time, the wet papers are removed with a sterilized, stiff, platinum wire bent at a sharp angle to form a hook and placed in 10 c.c. of sterile broth. After as much of the disinfectant as possible has been removed (in the case of sticky substances, the needle must be used to aid in freeing the squares of adherent germicide) the squares are retransferred to a fresh tube of sterile broth (10 c.c.), and the tubes incubated at 37° for 48 hours, when they are observed for evidence of growth.

It will be noted that in this test resubcultures are always required.

*The product used in these tests is Vapo-Spray, manufactured by Geo. H. Lee Co., Omaha, Nebraska.

since the first tube of broth to which the filter-paper squares have been added frequently contains sufficient antiseptic to show inhibition of growth. Both tubes of broth are usually incubated.

The test run by the above method using *Staph. aureus* as the test organism, proved that the oil spray killed this resistant microörganism in less than 5 minutes. This would indicate that under the conditions of this test, the oil spray exerts high germicidal qualities.

Dry Filter-Paper Tests

The dry filter-paper method[1] is used in tests of fumigants and of oils that are to be used where moisture is absent. It is similar to the wet filter-paper test, squares of paper being used that have been impregnated as described under the test above, except the squares are dried for two days in a sterile Petri dish in the 37° C. incubator. This test can be used successfully only with organisms capable of resisting the drying. *Eberthella typhi* will not withstand the drying. In the writer's work, *Staphylococcus aureus* is the usual test organism. The inoculated dried paper squares may be used at any time after drying up to 30 days, but the resistance of the organisms at no time should fall so low that it is incapable of withstanding a 1-80 dilution of phenol for five minutes at 20°. It should be noted that control tests with non-medicated squares should always be carried out to test the viability of the test organism. As in the wet filter-paper method, resubcultures are always necessary.

Results obtained by these tests were exactly opposite to those obtained by the wet filter-paper method. In other words, the oil spray was apparently unable to effect a disinfecting power against a dried culture of *Staph. aureus*. A dry culture of this organism is harder to kill than the wet culture.

At this point the writer reached the conclusion that in the wet filter-paper tests the moisture present acted as a catalyst to carry the active principle of the spray into the germ cells.

Keeping the above theory in mind, the next series of tests were conducted along parallel lines in order to ascertain the effectiveness of the spray when used in practical applications under both moist and dry conditions.

Two test organisms were used: *Staphylococcus aureus* and *Escherichia coli*. *Staphylococcus aureus* was chosen as being representative of the most resistant of the non-sporing organisms, including *Streptococcus hemolyticus* and *Streptococcus viridans*, while *Escherichia coli* is representative of pathogenic microörganisms of average resistance. Much larger numbers of these organisms were added to the test area than are found ordinarily under practical conditions, in an endeavor to establish maximum or even exaggerated conditions.

Agar Plate Tests[2] (Moisture present)

The technique employed in this series of tests was as follows: Circular aluminum pans ten inches in diameter were sterilized and a quantity of melted nutrient agar poured into them to a depth of one-quarter to one-half inch. In some instances large glass Petri dishes were used in place of the aluminum pans. For the majority of the tests, however, the aluminum pans were used in order to have available a large area of nutrient agar to be treated (sprayed). It was decided that the larger the area to be exposed to the action of the spray, the more accurate and indicative of the true value of this compound the tests would be. The nutrient agar was allowed to "set" for approximately 2 hours.

A 24-hour resistant broth culture of *Staph. aureus* was then diluted in sterile water to the point that each c.c. contained approximately 70,000 organisms. A sterile cotton swab was then dipped in this germ solution and spread evenly on the surface of the agar in the pans. The cotton swab was then squeezed dry to determine how much solution had been put on each plate. It was found that the average quantity used was 1½ c.c. or

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approximately 100,000 microörganisms to each plate.

After smearing the nutrient agar with the germ solution the pan was covered with a glass pane and allowed to dry for two hours. At the end of this time a small Petri dish cover was inverted in the center of the large pan. This was to afford a protected portion of the inoculated nutrient agar when the spray was applied. The pan was then tilted at an angle of about 45° and from a distance of two feet a light mist of the oil was sprayed. Just enough was sprayed on to give the agar surface a shiny appearance. There was no excessive amount sprayed. Only enough was applied that there were no drops running down the inclined surface.

The portion of nutrient agar under the glass Petri dish was not touched by the spray,—this acted as a control zone to show the presence and growth of the organisms spread on by means of the cotton swab. The glass covers were then replaced on the aluminum pans which were incubated at 37° C. for 48 hours. At the end of this time the plates were examined for growth of colonies.

The results were, without exception, uniform,—all indicating clearly the germicidal power of the spray. In the zone protected by the Petri dish cover the growth of colonies was excellent,—whereas the entire area sprayed with the oil showed absolutely no growth whatsoever. The results were rather surprising to the writer who had not anticipated this killing power in an oil spray.

The accompanying photograph shows strikingly the difference between the two zones on an agar plate. There is no sign of growth in the outer ring but on the inner circle, which was protected from the spray mist, there are hundreds of *Staphylococcus aureus* colonies. Almost a dozen tests were run as just described using *Staph. aureus* as the test organism. All were similar in appearance to this photograph. (This indicated that the test method itself was reliable in that results could be easily duplicated by other workers.)

Using the same procedure just outlined, *Escherichia coli* was used instead of *Staph. aureus*. The results were exactly the same.

It was then concluded that this oil spray does act as a disinfectant when used under conditions simulated by the above testing procedure.

However, this method just outlined using nutrient agar plates means that the test organisms are in a moist condition when acted upon by the spray. If it is true that the presence of moisture liberates the germicidal properties of the spray, the next step would be to run this same type of test on a dry surface, using dried organisms and compare results. The following procedure was used:

Dry Surface Tests (No moisture present)

The following procedure[3] was employed in this study: An area of 100 square inches was marked off on glass panes. This was washed thoroughly, rinsed, and allowed to dry. Broth cultures of the test organisms employed were diluted so that 1 c.c. contained approximately 70,000 organisms. 1½ cubic centimeters of the culture suspension was spread over the entire 100-square-inch test area by means of a sterile cotton swab. The glass panes were then dried in the incubator at a temperature of 37° C. for 24 hours. After being removed from the incubator, the test area was sprayed lightly with the oil, just enough to cover the surface with a uniform film of oil. In 15 minutes, one-half hour, and an hour after the oil had been applied to the glass pane, smears were taken by means of sterile cotton swabs. The cotton swab was rubbed back and forth over representative portions of the test area twenty times, after which it was twirled vigorously in 15 c.c. of melted nutrient agar, cooled to 45° C., the material and agar thoroughly mixed by rotating, and poured into a sterile Petri dish. The Petri dishes were then incubated at 37° C. for 48 hours. At the end of this time the plates were observed for growth of test organisms.

(The above procedure was followed using tile and linoleum in place of glass in several of the tests.)

The type of material used on which the oil was sprayed had no bearing on the results of the test, insofar as germicidal activity of the spray was concerned, since this activity was exerted in the tile and linoleum as well as on the non-porous glass surface.

Of 8 tests run as described above, all showed complete killing within the 15-minute period. This seemed proof that the oil spray exercised its disinfecting action just as readily on a dry surface as on a moist surface. Both *Staphylococcus aureus* and *Escherichia coli* were readily destroyed by this method.

In interpreting the data presented here, it must be remembered that in every test very large numbers of the test organisms were employed, far more than are met with ordinarily in practice. The killing of these large numbers of representative disease-producing organisms within the time periods indicated illustrates the high germicidal efficiency of this oil compound.

In the series of tests Nos. 3 and 4, the only control used was the unexposed portion of agar under the glass Petri dish cover. It was decided to make up a neutral oil spray composed of 50 parts of water-white kerosene and 50 parts 100/100 viscosity paraffin oil. This oil mixture was heated for half an hour to destroy any organisms present. Then, using the procedure as described in No. 4 series of tests, the following control tests were performed.

Control Tests

Using the procedure as outlined in No. 4, the neutral oil spray was sprayed on the glass surface (previously covered with dry *Staph. aureus* test organism). At 15-minute intervals for the period of an hour, smears were taken and inoculated in melted agar as previously described. The agar was then poured into sterile Petri dishes and incubated for 48 hours at 37° C. and examined at the

(*Turn to Page* 107)

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Agricultural Insecticides

The growing trend toward derris, cube, and pyrethrum,—and some speculation as to the future

By R. B. Stoddard

Richard Prentiss & Company

THE extent to which the so-called botanical insecticide materials, i.e. derris, cube and pyrethrum, and the various extracts derived from them, have made a place for themselves in the agricultural field is generally recognized by all who are familiar with the developments of the last five years. In fact, the space devoted to them in the technical literature on the subject is an indication of their future possibilities rather than an accurate measure of their current sales volume.

It is not so generally recognized that the introduction and rapidly growing popularity of this type of insecticide is a dominant factor, although not the sole one, in bringing about far-reaching changes in the commercial as well as in the technical phases of the insecticide industry. It is still too early to appraise these new tendencies accurately or to judge to what extent they will alter the mechanics of distribution and turn the business into new channels, but that they have already done so in some degree is obvious. In order to understand why this is the case and why further readjustments are probable, it is only necessary to review briefly the past history of the surprisingly young insecticide industry.

Science is faced today with the problem of controlling a wide variety of insect pests of serious economic importance. The number of pests is increasing rapidly and a profusion of insecticides are available for the task of controlling them. It is sometimes difficult to recall that less than fifty years ago few if any insects were regarded as serious menaces and the insecticide business as such had no commercial existence.

It is fair to say that Paris Green was the first agricultural insecticide to attain commercial importance. Historical accuracy is not one of the objects of this article,—so the statement may be risked that it owed its opportunity to serve as the cornerstone of a new industry to the necessity for controlling a practically nationwide infestation of the Colorado potato beetle which for a time seriously threatened to ruin the potato crop and gave the first real inkling of what an insect pest could do to garden crops under favorable conditions.

Paris Green itself was not new and had been manufactured for years as a mineral pigment for use by paint and wallpaper manufacturers. Under these circumstances, it was natural for then existing manufacturers of the product to expand their facilities to take care of the new demand and take practical control of the infant insecticide industry. The process worked both ways and as new problems arose in the field, these firms for the most part found themselves growing into the insecticide business and established separate departments to handle it. The later widespread use in tremendous volume of lead arsenate and calcium arsenate and of sulfur as a fungicide did nothing to alter the situation.

Up to this point we have a picture of the still young insecticide business as an adjunct of the heavy chemical industry. Bulk products of this type can only be manufactured economically in volume and with suitable equipment requiring both large capital investment and extensive sales organization to dispose of the output. The business in insecticides of necessity became centralized in the hands of the relatively few firms equipped to hold their own. With this, there grew up a somewhat intricate and not too clearly defined jobber-dealer setup for distribution of the products, with both jobbers and dealers trespassing on each others functions in many instances and with many of them doing some of the less intricate manufacturing for their local market such as the mixing of dusts and the preparation of lime-sulfur and oil emulsions.

Had the further development of the industry proceeded along the same lines, it is reasonable to suppose that the structure, built up intuitively rather than consciously, but in the main in strict accordance with

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economic requirements, would have remained substantially unaltered and the future of the insecticide business might have paralleled that of the heavy chemical industry as companionably as its past had done. This could and in fact must have continued as long as the basic insecticide materials remained relatively few in number, individually large in tonnage and of such a nature as to require heavy capital investment in the equipment of production.

The picture changed however, not at first abruptly, but so imperceptibly, indeed, at the beginning, that to attempt to be specific as to time or cause is to invite controversy. It is only a generalization therefore, to say that most of the change has taken place in the last fifteen years and by far the greater part in the last five. Since it is proceeding with increasing rather than diminishing velocity, we can look confidently for even greater alterations in the years immediately ahead.

The rapid multiplication in the last decade or two of insect pests of vital economic importance is no accident and is directly traceable to two causes, large scale cultivation of vegetables and fruits in concentrated areas, creating conditions ideal for insect reproduction and the unintentional transportation of insect pests to new areas where they have been able to multiply freely in the absence of the natural enemies which had held them in check in their former habitat.

In this manner a multiplicity of problems has arisen in the last fifteen years which had to be solved. Biological control of insect pests has had and still has its advocates, but even limited experience has demonstrated that it is likely to be of only limited application and at best offers the danger that the cure may be worse than the disease. The chief dependence has had to be placed on insecticides, and when it was found that in many instances existing insecticides were either totally or partially inadequate, the search for new materials became to say the least highly excited, and not entirely on account of altruistic motives either. It is no reflection on the insecticide industry to point out that this multiplication of insects to be controlled meant much in the way of increased volume and potential profits, and the solution of problems offered and still offers the prospect of immediate pecuniary reward.

Coincident practically with this urgent need for new and more effective insecticides came an influence which tended to concentrate the search in certain directions. This influence was the recognition on the part of the government and state authorities that the *unrestricted* use of *poisonous* materials on edible fruits and vegetable crops might be dangerous and could no longer be permitted. Lead, arsenic and later fluorine came under at least a partial ban.

The scope of this article does not include touching on any controversy as to the extent to which restrictions on poisonous insecticides are necessary. We are interested here only in tracing trends and their effects, and it is an unquestionable fact that the agitation against poisonous residues set up a new standard just at a time when the search for new and better insecticides was becoming intense. To meet this requirement, it became necessary that any new insecticide materials must not only offer promise of fulfilling their function of controlling insects and doing so within economic cost limits, but they must also be of such a nature as to leave no poisonous residues when used on edible fruits or vegetables.

It is true, of course, that there are many crops and many insect problems in the case of which the foregoing requirement is without force. Root crops such as potatoes and non-edible crops like cotton offer only the limitation that the insecticide used must control the insects and leave the plant uninjured. The fact remains that interest has centered to an extraordinary degree on the development of so-called non-poisonous insecticides which has limited the field of search most decidedly.

Leaving aside at this time the unanswerable question as to what may be accomplished in the field of research in the synthesis of new organic chemicals of insecticidal value, (and no little progress has already been made) the spotlight now rests squarely on the botanical insecticidal materials and specifically on the rotenone bearing roots, such as derris and cube and to a somewhat lesser extent on pyrethrum. At the present time, it is these materials alone which meet the essential requirements of efficiency, safety and availability in sufficiently large volume and at reasonable costs.

Under these circumstances it was inevitable that the use of these materials should show a tremendous expansion in the last few years, which is still proceeding at an accelerating pace. How far this will continue or when something else will be found to do their work better and cheaper are matters of conjecture. Equally so is the question as to the extent to which they will displace the older types of insecticides, particularly in the all-important field of fruit insect control. The surface has hardly been scratched as yet. Derris and cube have possibilities which have only been lightly touched. Better and more effective methods of using them will open up new fields. Pyrethrum is better known and its limitations more fully understood, but ways may be found of overcoming some of these limitations.

A vast amount of work has been and is being done with these botanical insecticides and the developments even of the next few months cannot be predicted. In any event what we are interested in here is not the technical side of the question, which could not be adequately discussed in one article or fifty, but in the manner and degree in which the sudden popularity of the botanical insecticides has altered the commercial and economic status of the insecticide industry.

To understand this, it is only necessary to recall that what we may speak of as the older insecticide industry was based on a few insecticides of the heavy chemical type, requiring extensive equipment and

large capital investment for their economical production. Derris, cube and pyrethrum as raw materials require no investment on the part of the insecticide manufacturer for their production and the investment required in the equipment necessary to convert them into the varied types of finished insecticides which can be made from them is small in proportion to the production and probably within the means of the average small company which is adequately financed.

The facts are simple but the results are complex. In a relatively few years, a substantial and rapidly increasing proportion of the insecticide business has been thrown open to a new competition. Capital investment has ceased to be the prevailing factor and individual initiative and technical skill, backed in many cases originally by very little cash, have created and are creating specialty businesses in insecticides of local and even national proportions which in the aggregate amounts to a large volume of business. Moreover, it is these comparative newcomers in the insecticide field who have done more than their share in popularizing these newer types of insecticides with the growers. Their courage and initiative in trying out new products and new methods of using the botanical insecticide materials have added immensely to our knowledge of their present value and future potentialities. It seems not unreasonable to believe that this tendency will continue. The field is still wide open for new technical advances, and plenty is still to be discovered in the way of better and more effective ways of utilizing these new materials.

Not all these advances however, will be made by the newcomers. The old established insecticide manufacturers have the advantages of prestige, distribution and adequate personnel and facilities for research and field trials. Their disadvantages are inertia and a perfectly understandable reluctance to take risks with new types of products until they have accumulated an adequate background of experience as to their safety and effectiveness. It is easy to see the direction in which the insecticide business has changed and is changing, but not so easy to say how long or how far the trend will continue.

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Rotenone Determination

Uncertain results are obtained in the determination of rotenone by extracting derris and cube roots in a standard Soxhlet apparatus. The reasons are: (1) When using a solvent of low boiling point such as ether, extraction is incomplete and the final washing of the crystallized salt with ether is unsatisfactory because of the small amounts that must be used to avoid dissolving too much of the salt. (2) When using solvents of higher boiling point, the prolonged heating generally causes destruction of the extractive substances, and the products resulting from this destruction make it difficult or impossible later to crystallize the rotenone or its carbon tetrachloride complex.

To overcome these difficulties it is recommended to extract pulverized, 100-mesh root with toluene at about 20° C. This gives practically complete extraction of the rotenone, while the other extractive materials are not present in as large amounts as when acetone or chloroform is used, and no destruction takes place. Subsequent recrystallization from carbon tetrachloride solution yields a purer salt. The recommended procedure is as follows:

Thirty grams of sample pulverized to pass 100 mesh (the usual fineness of the commercial product), are packed tightly in an ordinary funnel which has its stem stopped with glass wool or other filtering material. The mass is thoroughly moistened with toluene and washed 6 times with 20 cc. of toluene each time, in which each extraction is permitted to drain completely. Dilute the combined extracts to 150 cc. with toluene and transfer 50 cc. to a short-necked flask. Distill off toluene on an oil bath. When distillation is almost complete, hold the temperature of the oil bath at 130° C. and place a suction tube in the flask above the surface of the liquid. The evaporation is interrupted when no more drops of toluene appear on the inside surface of the flask or in the suction tube.

Dissolve the yellow residue by gentle warming in 7-8 cc. of carbon tetrachloride which has been saturated with rotenone at 10° C. Transfer the solution to a weighing glass, washing the flask twice with small amounts of carbon tetrachloride. The total volume should be 12-15 cc. but must not be reduced by evaporation. Cool while stirring with a glass rod. A rotenone crystal may be added. When crystallization is well under way, close the weighing bottle and leave overnight at a temperature of 10° C. The next day filter through a Gooch crucible, washing twice with carbon tetrachloride saturated with rotenone at 10° C., and once with pure carbon tetrachloride. Dry the salt at room temperature and weigh. It has the formula $C_{23}H_{22}O_6.CCl_4$. Frederik L. Begtrup. *Dansk Tidsskrift Farmaci* (1937). 11 pp.

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Toxicity of Derris

A chemical and biological examination of several samples of different types of derris showed that no correlation exists between toxicity and ether extract or rotenone contents. When however, the "dehydro-compounds," determined by an optical rotation method, were calculated as percentages of the ether extractive matter instead of percentages of the whole sample, a direct correlation was found. The figure obtained by dividing the ether extract value of a sample by the percentage of optical "dehydro-compounds" has been called the toxicity ratio. Such toxicity ratios were directly proportional to the weights of each required to give equal toxic effects, i.e. twice the value of the ratio required twice as much root to give the same kill. These results were based on toxicities to one insect only, *Aphis tavaresi*. R. R. Le G. Worsley. *J. Soc. Chem. Ind.* **56**, 15-23T (1937).

TERMITE CONTROL

Exaggeration of damage in reports of zealous control operators—much yet to be learned about control methods

By Neely Turner

Asst. Entomologist, Conn. Agric. Exp. Station

FOR years those of us residing in temperate climates believed that termites were mostly tropical pests and occurred so rarely in the northern states that they were not worthy of serious attention. However, there were published reports of damage at early dates. These include Boston and Cambridge in 1876 and 1885, New York City in 1893 and 1909, Albany, N. Y., in 1900, Ohio in 1894 and 1896, and Baltimore in 1898. During the past 10 years reports of damage in these and other northern areas have been increasing very rapidly. No very satisfactory reasons have been advanced to explain the enormous increase in reports of damage. In some areas it may be due to education of the publice and to activities of termite control companies. In other regions it is possible that the large amount of speculative building during and after the World War produced a large number of highly susceptible dwellings in infested areas.

In his book, "*Our Enemy the Termite*," Dr. T. E. Snyder acknowledges the increase in *reports* of damage, but makes no statement that termites are *increasing* in abundance. Doctor Snyder has also continually emphasized that there is no occasion for any exaggerated fears. He has stated, ". . . serious termite injury to buildings is relatively infrequent and termite work may go on for years without involving the necessity for extensive repairs or reconstruction of foundation timbers and flooring." In our own experience in Connecticut we have found that less than four per cent of the buildings are seriously damaged and that most of these seriously damaged buildings are more than 50 years old. Many comparatively new buildings are heavily infested and these are potentialities for serious damage in the future. The danger of collapse of a building without warning is very remote. In nearly every case there is ample warning that the building is infested and is being damaged years before any serious structural weakness occurs.

Many termite control operators have exaggerated the amount of damage and the danger of collapse as a result of termite attacks. In some cases this type of sales effort has actually resulted in a loss of business because it was perfectly obvious to the owners of the buildings that no danger existed. If termite control operators expect to cooperate with state and federal workers, all exaggerations must be eliminated from advertising literature and sales talk. In the rare cases in which a building is found to be in serious condition, it seems logical to advise the owner to have it examined by a competient contractor or architect or by a building inspector. The judgment of these men will carry much more weight than the statements of any salesmen.

Biology of Subterranean Termites

According to Snyder, the more important species of subterranean termites in the United States are as follows:

Reticulitermes flavipes Kollar — the eastern subterranean termite.

Reticulitermes hesperus Banks — the Pacific Coast subterranean termite.

Reticulitermes hageni Banks — light, southern subterranean termite.

Reticulitermes virginicus Banks—the southern subterranean termite.

Reticulitermes tibialis Banks — the arid land subterranean termite.

While there are many minor variations in the life history and habits of these species, the following account of the biology of *Reticulitermes flavipes* may be used as an illustration for all these forms. These termites are small and white, and about one-quarter of an inch long when fully developed. They live socially in colonies, usually located in moist soil near a supply of dead wood or other cellulose-containing material, which is used as food. The worker termites are white, blind, sexless and wingless and live entirely under cover. They make all excavations in the ground or in wood, construct

covered runways over obstructions, and feed the young termite nymphs, soldiers, queens and males. The soldiers are about the same size and color as the workers, but have enlarged heads with strongly developed jaws or mandibles. Their sole function is to protect the colonies from enemies, such as ants or termites from rival colonies. In the closed runways they are very effective, but in the open offer little resistance to any enemy. The true queen has a black head and thorax and the abdomen is greatly enlarged and partly white. Supplementary queens are white in color and are more important in rapid colony development than the true queens. One or more males reside with each queen. True queens deposit eggs which may produce workers, soldiers or true queens and kings. Supplementary queens may produce workers and other supplementary queens, but cannot produce true queens.

At certain periods of the year and particularly in the spring, large numbers of dark brown winged males and females develop from certain nymphs. These forms swarm from cracks in infested wood or from short shelter tubes, fly a short distance, usually not more than 75 feet, shed their wings, and seek a place in damp soil near a supply of food to start a new colony. If a suitable spot is found they mate and the female deposits 6 to 12 eggs. The young nymphs are fed by the king and queen until they become full-grown, which usually occurs in a year. Then the workers take over their duties and the queens starts her true function of laying eggs. Colony development is very slow; in five years only 5,000 are present under normal conditions and this number can develop on one-half a cubic foot of wood. Colonies large enough to destroy lumber in buildings require years for development. The "swarm" of adults does not remove very many termites from the colony. The larger proportion is left and continues destruction. Swarms occurring in houses usually fail to start new colonies, and may be considered harmless except as indication that the building is infested. Even out-of-doors a majority of swarming adults die without starting new colonies.

The colony is not a compact unit with a definite royal cell. It may be spread over a large area with several reproductive centers connected by a network of runways. Colony location may be changed with variations in temperature and moisture, and all colonies except those in heated buildings migrate below the frost line and hibernate during the winter.

The rate of reproduction of our termites is worthy of comment. Contrary to popular opinion, queens do not deposit thousands of eggs a day. Although records are scarce, it may be assumed safely that a queen of our termites seldom deposits more than 60 eggs a day. The large numbers in colonies are due to the presence of many queens and the three- to five-year life of individual termites.

The Food of Termites

The principal food of termites is cellulose, which is obtained from living plants, dead wood, paper, cloth, leather and other products. They digest this with the aid of protozoa and bacteria which are always present in the digestive tract. Although they prefer damp, rotting cellulose, they may feed on sound dry wood by carrying in moisture and fungi in the burrows. For this purpose, they require a constant supply of moisture, which is usually obtained from the soil. They cannot utilize water from pans or other open receptacles.

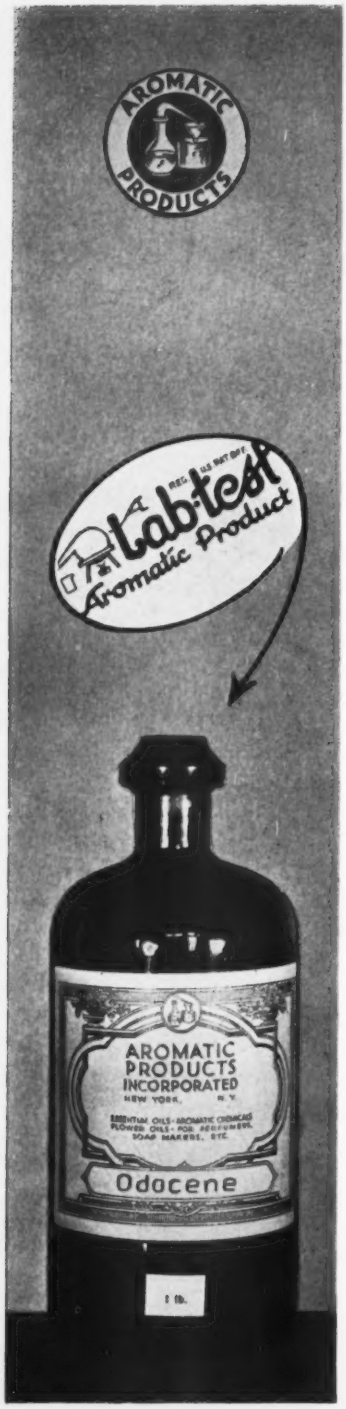
Termites are capable of persistent concerted action, with behavior that in some cases seems to approach intelligence. They are able to locate susceptible points in building construction by constant searches for new sources of food. Once in a building, they continue their destruction unless they are checked by natural or artificial means. Contrary to popular opinion, individual termites do not destroy wood rapidly. Destruction of wood is a slow process and serious damage to buildings is usually a matter of years rather than of weeks or months. Wood is destroyed rapidly in case susceptible buildings are erected in areas in which large termite colonies are present or if damaged wood is replaced by sound wood with no protection provided.

Control of Termites

It is very natural to attempt to apply the methods of control developed for other insect pests to control of termites. However, the destructive forms of subterranean termites live entirely under cover. The individuals may be killed by such innocuous chemicals as common table salt and borax, but it is very difficult to reach the termites to apply any such material. Trapping, spraying, use of poisoned baits and control by parasites have not been applied successfully to termite control. Complete extermination of a colony is not practicable and in most cases is impossible, but many individuals can be killed by the use of soil poisons Fumigation or application of heat will kill termites but will not prevent re-infestation. Treatments brushed or sprayed on infested timbers or poisoned dusts injected in burrows have not proved effective against subterranean termites.

For a period of at least 35 years, the most practical, successful, and permanent method of control has been to exclude termites from buildings by proper construction methods. To do this intelligently, we must know how termites enter buildings and what materials and methods will stop them. If termites in an infested building are cut off from moisture they die at once. No special efforts to kill them are necessary.

Subterranean termites enter buildings at some contact, either direct or indirect, between the wood portions of the building and the ground. Indirect contact may include cracks or hollows in foundations or floors and entrance by means of shelter-tubes constructed over foundations. A termite infestation might be brought into a building by storage of badly infested wood, such as fireplace wood. If the termites in such material were able to reach moist soil



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within a few hours they could become established in such a manner.

Termites do not enter buildings through open windows or doors, or crawl in through cracks in clapboards, etc. Although they could be introduced in a building in structural timbers, it is hardly conceivable that a competent carpenter would use a badly infested timber in building construction.

Termites can penetrate the following materials:

1. Lime mortar, which they dissolve by means of an acid secretion.
2. Masonry work of brick, stone or other units, as commonly laid up, cannot be considered p r o o f against penetration by termites because of vertical and horizontal hollows.
3. Tar and asphalt compounds are penetrated by termites. They may also penetrate hard and soft paint films, poisoned paint and two-ply roofing felt.
4. Termites can penetrate cracks in solid concrete, such as cracks between floors and walls, and settling cracks in foundations.

Termites cannot penetrate:

1. Solid concrete without cracks, or solid unit masonry laid solid in cement mortar, but they can construct shelter-tubes over such masonry.
2. Wood treated by a standard pressure process using effective preservatives. However, they can c o n s t r u c t shelter-tubes over treated timbers to reach untreated wood above.
3. Copper, zinc or iron sheet-metal, and they cannot construct shelter-tubes up over the edges of properly installed metal termite shields.

On the basis of these known facts, it is possible and feasible to erect buildings which cannot be penetrated by termites. It is also possible and practical to reconstruct existing infested buildings to meet termite resistant specifications. Detailed directions for this reconstruction can be found in the pamphlets and books listed in the bibliography.

Soil Treatments

For a period of at least 40 years, various investigators have made attempts to find a satisfactory soil treating material to kill the termites present or to act as a barrier against their access to a structure. However, the California Termite Investigations Committee was unable to find that any such treatment was a standard practice or that any conclusive experiments or observations supported any such treatment. Doctor Snyder states: "The use of soil poisons is, however, still very much in the experimental stage and on present information cannot be recommended as a permanent remedy."

Experience has shown that results obtained in one section of the country are not always applicable in other regions. For instance, in New England low soil temperatures, alternate freezing and thawing of the soil in winter, the presence of large amounts of soil moisture which frequently move laterally, and the presence of rock ledges which prevent treatment of subsoils in many localities all act against successful use of soil treatments which have proved valuable in subtropical regions. Tests of soil treatments in temperate climates are in progress but to date no official publications describing them have been issued. Many of these treatments may seem effective at the present time, but in the light of past experience it is unwise to draw conclusions until the tests have been completed.

At the present time, soil treatments may be regarded as (1) an aid in connection with structural changes or (2) as a temporary palliative. There are many infested buildings which have only a few termites present and have not been badly damaged. In such buildings the use of minor structural changes in connection with a thorough soil treatment seems to be logical. The changes needed may be classified as follows:

(1) Removal of wood in actual contact with the ground.

(2) Provision for adequate clearance in unexcavated areas.

(3) Replacement of wood bearing posts with lally columns.

(4) Reconstruction of wooden basement partitions.

(5) Replacement of wooden basement window frames with metal frames.

(6) Metal shielding to protect the framework adjoining masonry porches.

Many operators feel that the use of such structural changes is an admission that the soil treatment is of little value. This is not the case at all, although in some cases the changes might be effective without soil treatment and the soil treatments might be effective without structural changes. The use of both types of control increases the chances of permanent success.

Soil treatments may serve as palliatives particularly in temporary structures or buildings of too small a value to warrant expensive alterations. During the past few years many home owners have used such a treatment with full knowledge that it is not a permanent protection against termites. There is a place for this type of treatment, but the operator should make it plain to the owner that permanent control is not to be expected.

Certain types of structures are so susceptible to termite entry that soil treatments cannot be used with confidence. These include (1) old colonial houses with very porous stone foundations, (2) inexpensive wooden houses built directly on the ground, (3) large brick buildings with a dead-air space in the masonry wall, (4) buildings with foundations of hollow concrete blocks (unless laid on solid concrete bases which extend above grade level) and (5) summer cottages built on wood posts or piles set directly in the ground. If such buildings are heavily infested by termites, it is very difficult to stop damage with soil treatment only.

To summarize, there is at present insufficient evidence to prove that soil treatments are permanently effective in controlling termites. However, there is a definite need for soil

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treatments (1) as a palliative in buildings not valuable enough to warrant extensive structural changes, (2) as an aid in connection with minor structural changes, and (3) in masonry buildings with concrete floors, in which termites are damaging stored materials.

Treatment of Timbers

During the past few years termite control operators have developed various systems for treating timbers in place in infested buildings. There is little evidence published to date in regard to these methods. They are usually accompanied by a thorough soil treatment and sometimes by structural changes. Although thousands of buildings have been so treated, there is no published analysis of the effectiveness of the treatments. Certain disadvantages are apparent: (1) Many kinds of wood are very difficult to penetrate; (2) damp wood cannot be penetrated satisfactorily; (3) many of the treating fluids contain volatile solvents that are inflammable, and their use constitutes a fire hazard; (4) it is very difficult to reach all parts of all timbers needing treatment; (5) in actual practice the treating fluid follows termite burrows or comes out through seasoning cracks rather than penetrating the wood.

Discussion

In spite of the enormous amount of work done in the past on termite biology and control, much remains to be done. As contributions are made it is possible that the application of control measures may be changed. However, no new method of control can be accepted until it has stood the test of successful application under a variety of conditions.

Literature

Kofoid, C. A. (editor). Termites and Termite Control. 2nd ed. pp. 1-734. Univ. of California Press. 1934.

Contains a large amount of information about all types of termites found in this country, results of tests with various soil and wood treatments and recommendations for control of all types.

Snyder, Thos. E. Our Enemy the Termite. pp. 1-176. Comstock Publishing Co., Ithaca, N. Y. 1935.

Contains an excellent account of biology and control of subterranean termites and much information on other types. The result of 26 years of work with termites.

The following publications are believed to be available without charge from the publishing offices:

Snyder, Thos. E. Injury to Buildings by Termites. U.S.D.A. Leaflet 101. 18 pp. 1933.

A brief summary of control of subterranean termites.

..... Preventing Damage by Termites or White Ants. U.S.D.A. Farmers Bulletin 1472. 21 pp. 1934.

A more complete summary of the control of termites in buildings and in living plants.

Miller, A. E. & Flint, W. P. Habits and Control of Termites. Illinois Natural History Survey Circular 11 revised. 12 pp. 1931.

A summary written in the form of questions and answers.

Bentley, G. M. & Rogers, J. L. Work of Termites or "White Ants" in Tennessee. Division of Plant Disease Control (Knoxville) Bulletin 49. 24 pp. 1931.

An account of termite damage in Tennessee with control measures.

Turner, N. & Townsend, J. F. Termite Control in Buildings in Connecticut. Conn. Agr. Exp. Sta. Bulletin 382. 36 pp. 1936.

A summary of the biology of *R. flavipes* and its control in relation to building construction.

Germicidal Oil Sprays

(*From Page* 93)

end of this time for any growth. All plates showed a heavy growth of the test organism used. This was considered conclusive proof that, using this method of test, the oil spray was very effective in killing these organisms.

References

1 United States Food and Drug Administration Methods for Testing Antiseptics and Disinfectants. Circular No. 198, December, 1931.

2 "The Phenol Coefficient as a Measure of the Practical Value of Disinfectants"—J. C. Varley, SOAP, January, 1936. (Method varied somewhat to simulate practical conditions.)

3 "The Phenol Coefficient as a Measure of the Practical Value of Disinfectants"—J. C. Varley, SOAP, January, 1936.

WARNING!

THE publishers of *Soap* are advised by several subscribers that they have been offered what were purported to be original research reports on recent technical developments in waxes, polishes, floor waxes, etc. by a firm in New York known as J. J. Berliner & Staff. Upon investigation by us, these reports turned out to consist largely of articles reprinted verbatim from back issues of *Soap*. No credit is given to *Soap*, or any mention made of the source of the material. The reports are sold at very fancy prices when compared with the cost of the issues from which the material was taken.

About a year ago, *Soap* had a similar experience with this Berliner outfit. They "lifted" a series of three technical articles on sulfonated oils which had been published in *Soap*. They made no mention of the source then and offered their "reports" as original data. At that time, we warned them. We know that they have been warned also by other publishers against this same thing, and that there is a considerable file of evidence against them.

If this Berliner firm continues to "lift" material from *Soap*, it is our intention to place the matter before the Federal Trade Commission. In the meantime, we desire to place the facts before any of our readers who may be contemplating buying their "research reports."

The Publishers

TECHNICAL NOTES

Pine Needle Oil Deodorant

Pine needle oil or a similar essential oil can be emulsified with potassium or sodium rosin soap for use as a deodorant. The potassium salt of abietic acid or of oleo-abietic acid makes a good emulsifying agent. Triethanolamine can also be used in making the soap or an excess of triethanolamine can be added if it is desired to have the product mildly alkaline. The stability of some emulsions is greater on the alkaline side. Potassium oleo-abietate forms a viscous pasty mass and possesses a rosin-like odor. It gives an alkaline reaction. If 5 parts of pine needle oil are mixed with 1 part of this soap a clear solution is obtained which forms a milky emulsion when poured into water. The rosin soap replaces Turkey red oil and similar sulfonated oils.

Another good formula which gives a milky product, is as follows: 28 parts of pine needle oil, 3.2 parts of potassium oleo abietate, 1 part of denatured alcohol, 2.4 parts of pure olein, and 1.5 parts of distilled water. Mix together the pine needle oil, the rosin soap and the olein, stir in the water and finally add the alcohol. With the addition of a further 7 parts of water to 10 parts of the above mixture a fine, stable, milky product is obtained. *Seifensieder-Ztg.* **64,** 29 (1937).

Bleach and Disinfectant

The solutions are prepared from a mixture of a bleaching or disinfectant compound of a metal of the second group of the periodic system and a sufficient quantity of a water-soluble alkali-metal or ammonium metaphosphate to prevent precipitation of the second group metal when the mixture is dissolved. Alkaline detergents may also be added. A preferred mixture consists of a high grade calcium hypochlorite containing about 70-75 per cent calcium hypochlorite, 15-20 per cent common salt and 10 per cent of the chlorate, hydroxide and chloride of calcium mixed with 3 times its weight of sodium hexametaphosphate. Albright & Wilson, Ltd. British Patent No. 455,611.

Derris Root for Shipment

The ether extract and rotenone content of the smaller rootlets of derris were found to be as high as those of the larger roots of a given plant. Roots harvested at 18-month intervals contained 5-6 per cent of rotenone on an air-dry basis. This was determined by crystallization from the ether extract and by recrystallization from alcohol. It is important that the roots be sufficiently air-dried before shipment. Moisture determinations are best made by the xylene distillation method. C. D. V. Georgi and Gunn Lay Teik. *Malayan Agr. J.* **24,** 489-502.

Stored Pyrethrum Dust

Undiluted pyrethrum dust is effective in the field when stored as long as three years in closed containers. A pyrethrum-tobacco mixture is effective after storage for 1-2 years in closed containers. In open containers it will deteriorate definitely in this time. C. B. Wisecup. *J. Econ. Entomol.* **29,** 1000-3 (1936).

A new package of interest to the insecticide field,—the new five gallon Tanglefoot Fly Spray container. Product manufactured by the Tanglefoot Company of Grand Rapids. Container by Wilson & Bennett of Chicago.

Hold Packaging Show in N. Y.

The Seventh Annual Packaging Exposition was held at the Hotel Pennsylvania, New York, March 23-26, 1937, under the sponsorship of the American Management Association. Included among the many exhibitors was the Package Machinery Co., Springfield, Ill., featuring its "FA" model set up for cellophane wrapping for cartons. The booth displayed the new coated and lacquered papers ready to be used in the machines, and samples of varied types of packages. The exhibit was in charge of R. L. Putnam, president of the company, and G. A. Mohlman, vice-president.

The booth of the Wilson & Bennett Mfg. Co., Chicago, was under the direction of S. A. Bennett, president of the company. New containers were shown, all featuring the new protective lining. Types of openers and spouts were also displayed.

The exhibit of Stokes & Smith Co., Philadelphia, in charge of Carl E. Schaffin, sales manager, showed samples of packages and containers used in filling and packaging equipment. The S. & S. conveyor machine and pictures of various other filling and sealing machines were also part of the display.

The Packaging Machinery Manufacturers Institute held its semi-annual meeting March 25-26, in connection with the show, with a dinner meeting Thursday evening, March 25. A Production and Engineering Clinic, to which the production and engineering personnel of all packaging machinery companies were invited, convened Friday morning, March 26. Wallace D. Kimball of Standard-Knapp Corp., acted as chairman of the clinic in charge of the program.

—— ♦ ——

W & B Plant Addition

Construction work has been started on a two-story, brick addition to the Clearing plant of Wilson & Bennett Mfg. Co., Chicago, steel pail and drum manufacturers. The new building is expected to be ready for occupancy by May 1st and will be used as a warehouse and headquarters for local deliveries.

NEWS . . . . . .

Form Queen Ant Control

Queen Ant Control, Inc., has been organized by Carl G. Ludwig, A. C. Helmbrecht and B. J. Ludwig in Columbus, Ohio. The concern will manufacture a product for destroying ants.

Johnson Files Stock

S. C. Johnson & Sons, Inc., Racine, Wis., have just registered 3,540 shares of seven per cent cumulative preferred stock, par $100. This is part of an issue of 30,000 shares.

Starts Supply Business

P. O. Cornelisen has recently organized the Green Bay Chemical & Supply Co. at 803 Oregon St., Green Bay, Wis. The concern will supply soaps, disinfectants, cleaners, insecticides, polishes, brushes, floor products, etc.

Fuld to Build Again

Fuld Bros. have just acquired additional properties adjacent to their present plant site, at 708-710 S. Wolfe St., Baltimore. This new space is needed in spite of the fact that the company just occupied a new and much larger plant only last year. Buildings now standing on the new site will be razed within a few weeks and work started on a new building. When completed it will provide 5,000 square feet of additional storage space and extra storage capacity to the extent of 100,000 gallons.

Windsor Wax Stock Sale

The estate of Leo E. Fleischman has just purchased the stock interest of Irving Wexler, a former partner in Windsor Wax Co., New York. Since the death, last fall, of Leo E. Fleischman, the other Windsor partner, the Windsor business has been directed by Jacob Kahn, vice-president of the concern. Mr. Kahn now becomes president of the company. Mr. Wexler will have no future connection with Windsor Wax Co. and will devote his entire time to his position as president and general manager of Buckingham Wax Corp., Long Island City, N. Y. Organization of this new concern was announced by Mr. Wexler about six months ago.

New Lowell Sprayer

Lowell Manufacturing Co., Chicago sprayer manufacturer, has added a new type sprayer, known as the Pennant No. 40, to its line of products for the soap and sanitary products field. The outstanding feature of this new sprayer is the open top design that simplifies cleaning and filling.

New Furniture Polish

O-Cedar Corp., Chicago, wax and insecticide manufacturer, is now marketing a new type no rubbing, cream furniture polish.

Cosmos Sales Program

Cosmos Chemical Corp., Boston, maker of "Sanovan" deodorant, has increased its advertising appropriation for 1937. Advertising will run in 29 New England newspapers, backed up by radio advertising in this territory.

New Advertising Agent for Rex

Rex Research Corp., Toledo, has announced the appointment of Gordon Vlchek Advertising Agency of Toledo to handle the Rex advertising account.

Breuers Return From South

Adam A. Breuer, head of Breuer Electric Mfg. Co., Chicago, accompanied by Mrs. Breuer and their eleven year old son, recently returned from a southern vacation trip. The hero of the trip was Adam, Jr., who upheld the honor of the Breuer name as deep-sea fishermen by landing a sail fish unassisted off the coast of Florida near Fort Lauderdale. This is an unusual feat for a boy of his years, since many veterans of deep-sea fishing have never experienced the thrill of hooking a sail fish.

Dwin $200,000 Radio Campaign

Baldwin Laboratories, Saegerstown, Pa., recently contracted for an extensive radio advertising campaign for their insecticide "Dwin". It is estimated that the time cost of the picked set of stations chosen for the campaign will be over $200,000. H. W. Baldwin, president of Baldwin Laboratories, was in New York recently, accompanied by M. A. Yount, head of the advertising agency handling the Baldwin account, to arrange for details in connection with the campaign. In commenting on the campaign and the stations selected, *Variety* said in a recent issue: "Comment around the trade was that for rank outsiders Baldwin and his two aids proved adept at picking 'em when it comes to prestige, coverage and getting value for the money."

Monsanto Net Up

Monsanto Chemical Co., St. Louis, reports net income of $4,468,703 for 1936, equal to $4.01 a share on the common stock. This compares with $3,843,390, or $3.84 a share, in 1935. This increase in profit came in spite of reduced prices and higher wage rates.

Insect-O to Sieck

Insect-O Products Co., Burbank, Calif., manufacturer of a patented insect spray gun, has appointed H. Charles Sieck, Inc., Los Angeles advertising agency, to handle its account.

Sanitary Supply Meeting

The Associated Sanitary Supply Distributors of Chicago held their regular monthly meeting on March 8th at the Hamilton Club. A general discussion of the problems of the industry was participated in by all the members.

Wilbert Protests "Wilbur's"

Wilbert Products Co., New York, manufacturers of household ammonia, floor waxes, and other household products, has through its attorney, Percy Freeman, New York, advised the H. J. Wilbur Chemical Co., North Bergen, N. J. to cease using the name "Wilbur's" on household ammonia as it tends to confuse the buyer with the name "Wilbert's." The letter from the Wilbert attorney stated:

"My client, Wilbert Products Co., Inc., of New York, advise that it has come to their attention that you are advertising and selling household ammonia and other items using the name 'Wilbur's'.

"You must realize that such action on your part can only be calculated to deceive the public into the belief that they are buying 'Wilbert's' ammonia when in fact they are getting 'Wilbur's' ammonia. The name 'Wilbert' in connection with household products has been well known and well advertised for years, and any imitation or simulation of that name used on products similar to those sold by the Wilbert Products Co., Inc. is likely to cause confusion in trade and deceive the public.

"We must, therefore, ask you to desist at once from further use of the name 'Wilbur's' in connection with the advertising and sale of ammonia, washing fluid, and other allied products.

"It is always with great reluctance that we commence suit to restrain infringement of our name and trade marks, but you undoubtedly realize the necessity for Wilbert Products Co., Inc. to guard its reputation and prevent any damage to its good will."

In reply to the letter from the Wilbert attorney, H. J. Wilbur, head of the H. J. Wilbur Chemical Co., who states that he has been in business since 1903, said:

"I cannot understand how I let them get away with using the name 'Wilbert' so long. You might not know it, but we were in business 10 years before the Wilbert Company. I have been tempted to take the case into the courts many times and stop them from using our name.

"First, my name is Wilbur. There is no one by that name in their company and never was. We have used the name 'Wilbur' for years in more than one state, and we intend to keep right on using it.

"They have started something I am afraid I will finish. We can prove by some years that we were in business first and used the name 'Wilbur' ten years before they started."

N. J. Exterminators Organize

A local exterminators association has just been organized in Newark, N. J., with the title, Professional Exterminators of New Jersey. Albert J. Arndt of Arnolene Exterminating Co. heads the new organization, with the following slate of other officers: vice-president, E. W. Guttenberger of Guarantee Exterminating Co.; treasurer, Herbert Ulrich of Acme Exterminating Co.; membership committee, Murray Karasik of Abco, Inc., Jack Lippman of Essex County Exterminating Co. and Frank Russo of Scientific Exterminating Co.; finance committee, Herman Pfeifer of Herman Pfeifer Co., Charles J. Shulz of C. & M. Shulz and Joseph Rubinson of N. J. Exterminating Co.

Albert J. Arndt

Geo. S. Peagler Dies

George S. Peagler, owner of Capital Chemical Drug Co., insecticide manufacturer, Montgomery, Alabama, died recently in that city.

Opposes Factory Inspection

In a letter to W. B. Eddy, president of the National Association of Insecticide & Disinfectant Manufacturers, a well-known manufacturer of sanitary products protests strongly against permissible factory inspection as provided for in the new Copeland Bill. His letter states in part:

"Legislation of recent years has been enacted so hurriedly and in so great volume that those who receive abstracts of pending legislation and bills are just about weary and ready to give up.

"It seems difficult in our own industry to stir up enthusiasm for the fight on S-5. However, the more you read this bill the more people in our position will come to appreciate just what they are going to let themselves in for, if they sit back complacently and let it pass. Our own particular hate is Section 27 relating to Factory Inspection.

"Everyone knows the annoyance that alcohol inspectors have from time to time caused legitimate manufacturers who have held alcohol permits. I don't think anyone who has held an alcohol permit for a number of years has not met with at least one annoying and disagreeable experience.

"Even in the face of this experience many persons seem to feel that Inspection Authority granted to the Department of Agriculture will be free from such annoyance and friction.

"Our contention is that this will not be the case. The Inspection Service of the Department of Agriculture as we have pointed out before has gone beyond their legal rights in seeking information for the securing of samples and other purposes.

"We will give you another instance to show where the Inspectors of the Department of Agriculture attempted to arrogate to themselves a privilege not accorded them by law.

"In February of this year a young Inspector of the Department called at our factory and after some conversation rose and said—'If you will lead the way and show me, I will now make my regular factory inspection.' We pointed out to him the fact that he would not make any inspection for the simple reason that he had no legal right to ask for such an inspection.

"The Inspector in an entirely friendly way was disposed to argue the matter and tried to put us on the defensive by asking what we had to hide. He stated flatly 95 per cent of the manufacturers accorded them the privilege of inspection and made no objection whatsoever to their entering the premises and making such inspection.

"You can see just exactly where this is leading to. It is a build

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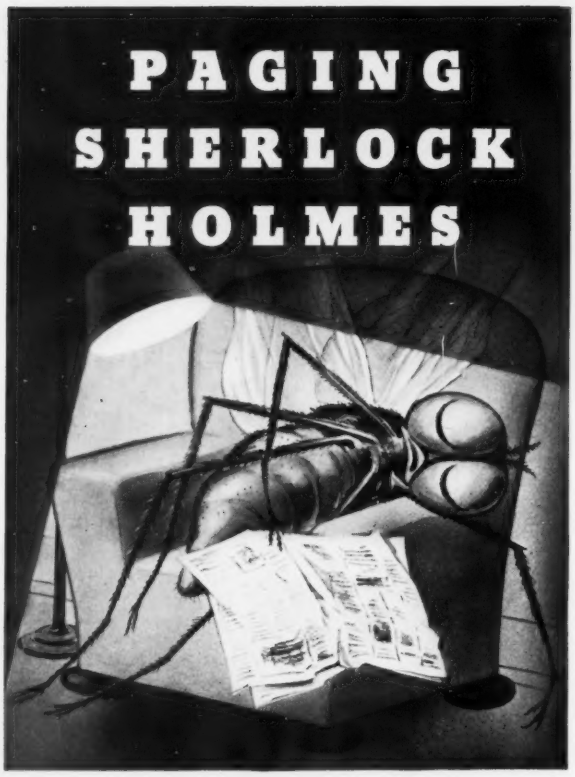

Atlantic Ultrasene

—A BETTER BASE FOR BETTER INSECTICIDES

SCREECHING sirens, screaming headlines. Mr. Fly is dead . . . murdered. Scotland Yard baffled. No trace, no clue. . . . Paging Sherlock Holmes!

"Child's play, child's play, my dear Watson," said Sleuth Sherlock upon arrival. "Half an eye will tell you an insecticide did the deed. No ordinary insecticide, mind you. An insecticide with an Atlantic Ultrasene base. Hence no trace, hence no clue. Too easy, Watson, too easy."

Atlantic Ultrasene is highly refined for one purpose — as a carrier for insect killers. It is uniform, evaporates rapidly, leaves no oily residue, no unpleasant odor . . . no trace, no clue. That's why successful insecticide manufacturers are choosing Ultrasene for their spray-base. That's why hotel and restaurant proprietors — proprietors of all kinds of places where food is stored or prepared — are demanding Ultrasene-base insecticides.

It will pay you to know more about Atlantic Ultrasene. Write for further information and liberal experimental samples. Our technical department is ready to help you. The Atlantic Refining Company, Specialty Sales Department, 260 South Broad St., Philadelphia, Pa.

ATLANTIC ULTRASENE

up for purpose of being able to testify before Congress that most of the manufacturers are willing to have their premises inspected.

"We feel that an Inspection Service that has resorted in two different directions, to extend their authority beyond the legal limits already set by the law, is not worthy of further trust particularly where the authority is broad, sweeping and discretionary.

"We would like to see these facts presented to our membership, to have the membership polled and proxies forwarded to the legislative committee with a mandate to present the protest to the proper Congressional Committees at the first open hearing.

"Unless we gather ourselves together and fight this thing to the bitter end we are going to find ourselves manufacturing materials practically **under a permit from the Government.**"

N. J. Fumigant Legislation

Several bills are currently under consideration in New Jersey to control fumigators and exterminators, one of which, Assembly Bill No. 174, would prohibit the use of hydrocyanic acid except for greenhouse, farm, grain elevator or official state or federal fumigating jobs. The other state bill, Assembly Bill No. 213, is more comprehensive, and includes in its scope exterminators and termite control operators as well. It provides for certificates of competency to be issued by the State Department of Health, following examination. It also provides for poison labels on any poisonous insecticides given to clients, and places restrictions on the use of a number of fumigating materials, including hydrocyanic acid, cyanogen compounds, chloropicrin, etc.

A third bill pending before the Board of Commissioners of the City of Newark, N. J., provides that the City Health Officer is authorized to forbid or outline conditions under which fumigation or disinfection may be permitted. Members of the industry contesting the validity of this measure advise that the powers of the City Health Officer are really restricted by State Law which makes it necessary to publish such regulations before they are put into effect.

The immediate incident believed to be back of the move against hydrocyanic acid fumigation is the recent death in Atlantic City of two people found in an apartment where hydrocyanic acid had been used in fumigation work. The owners of the apartment house were tried in the death and found not guilty of manslaughter. They testified that they had warned all occupants to leave the building and that the couple later found dead had advised that they would leave immediately.

Castle on Pest Board

Captain D. B. Castle, president of the American Marine Fumigating Co., San Francisco has recently been named as a member on the California Structural Pest Control Board. He will serve a three-year term. Other industry members on the board are M. G. Jorgenson of Jorgenson & Co., Los Angeles, and Wilbur F. Smith, Alderman Co., Pasadena.

Check "Clorox" Claims

Under a stipulation entered into with the U. S. Federal Trade Commission, Clorox Chemical Co., Oakland, Calif., agrees to discontinue representing that its washing fluid, sold under the name "Clorox," kills typhoid, diphtheria, scarlet fever and many other infectious germs in less than ten seconds. The company also will cease advertising that "Clorox" will remove stains and destroy odors, unless such representations are properly qualified.

Trojan Prods. to Move

Trojan Products & Manufacturing Co., Chicago, will move about April 30 into new quarters at 3130-3136 So. Wabash Ave. The new quarters, including the whole of a three-story building, offer five times more space than was available at the old location at 3107 So. Wabash Ave.

Advertise "Lacquerwax"

Minute Man Products Co., Hartford, Conn., maker of "Lacquerwax," has named Charles W. Hoyt, Inc., as its advertising agency.

McCormick Appoints Sanner

McCormick Sales Co., Baltimore, has announced the appointment of Harry C. Sanner, Jr., as manager of their west coast office at San Francisco. He has been with the company for three years, traveling in the east and south.

Florida Bug Bites Schwarcz

The following letter from Leonard B. Schwarcz, president of Clifton Chemical Co., New York, offers an interesting commentary on the current tendency of American business men to spend a good share of their winters in Florida. Mr. Schwarcz, who is enjoying a short vacation in Florida, writes as follows:

Editor of SOAP—

"After the Lord had completed the exclusive Garden of Eden, as an afterthought he created St. Petersburg for the non-wing-sprouting mortals. (This according to the local Chamber of Commerce.)

"Am situated in a cosy little lean-to of nine rooms and three baths which I never use as the house is just a stone's throw from the Bay and Gulf (or rather two stone's throw—one for each.)

"Have been hanging around the renowned Fountain of Youth for a week or two, but have given it up as my sciatica and rheumatism are getting worse. I think the fountain a fake.

"But joking aside, it's nice healthy country around these parts. My only objection is that the shapes on the beach are not quite as good as those over Miami way. A lot of vegetarians, octogenarians and other aryans and non-aryans, congregate down here. The average age I understand, is 87 years. It is so healthy here that practically no one ever dies. The few undertakers in town are all broke (playing the slot machines and the dog races.)

"The real estate people just found out that there was a big boom over in Miami ten years ago, so they just started one here. Being weak-minded I have succumbed to the ballyhoo and am building a house on the water. It will have a gravity tank system for liquid soap. As a matter of fact it is being built around the system. It'll be the only one of its kind in the world—a monument to the liquid soap business.

"The only trouble is one gets so lazy, but anyway, I had a good handicap to start with and am even ahead of some of the hookwormed local crackers in this respect. The other day while I was reclining in a semicose condition in a beach chair, I was bopped on the bean by a ton of brick. When I came to I saw it was only a cocoanut which had dropped from the tree.

"Like a flash out of the sky a bright idea occurred to me. Here are a bunch of cocoanuts growing wild and the soap manufacturers up North are paying outlandish prices for cocoanut oil that comes all the way from the Philippines. My plan is to send a few of the natives out in the woods and collect tons of nuts. Then all I'll have to do is press them and there you are. Unlimited supply of cocoanut oil—cost practically nil. I'll show some of those price-cutting competitors how to sell soap cheap. I could cut prices 40 per cent and make plenty of money, but I'm not a chiseller so I'll only cut 30 per cent. Keep this under your Stetson.

"Hoping you are the same, I am,

"Lackadaisically,

"Leonard".

Expect Heavy Insect Season

Due to the extremely mild winter which will undoubtedly be followed by an early spring, Dr. A. E. Badertscher, chief entomologist of McCormick and Co., Baltimore, predicts an unprecedented increase in the number of destructive insects throughout the country this spring. "In some sections" said Dr. Badertscher, "due to the mildness of the weather, the insects have not even stopped developing through the winter, and the first warm weather will undoubtedly cause tremendous activity."

Issue Tephrosia Review

A review of the literature on "Tephrosia as an Insecticide" has just been published by the Bureau of Entomology & Plant Quarantine, U. S. Dept. of Agriculture. The author is R. C. Roark. Included is a classified list of insects against which tephrosia has been tested, as well as sections dealing with patents relating to tephrosia. Copies may be obtained through the department.

Vincent P. Adams, president of V. P. Adams, Inc., Jamaica, N. Y., has announced the receipt of a patent on the newest thing in automatic deodorizers for lavatories.

Insecticide Book

Chemie und Toxikologie der Schadlingsbekampfing, by Gerhard Peters. Sammlung chemischer und chemish-tecnischer Vortrage, Neue Folge Heft 31, 1936. Pages 1-120. 22 figs. Published by Ferdinand Enke, Stuttgart. This book is an elementary treatise on the toxicology of insecticides. The reviewer would recommend it to students who want to study German and insecticides at the same time. The student will learn the various classes of insecticides, their uses and mode of action and the factors affecting their action. He will also learn something about laboratory methods for the determination of insecticidal value and of certain physical properties of insecticides. He will be impressed by the possibilities of increasing insecticidal action by suitable combinations of insecticides.

The discussion of the action and testing of fumigants is the strongest part of the book, probably because the author has had personal experience with fumigants. He advocates the use of the concentration-exposure time product at a definite temperature and 100 per cent kill for expressing the insecticidal value of a fumigant in terms of grams per cubic meter per hour. However, he does not discuss the limitations of this method. William Moore has recently shown that for certain gases and insects the product of concentration and period of exposure is not a constant, but that a constant can be obtained if the concentration is multiplied by a fractional power of the period of exposure. Figure 1, a cartoon illustrating the action of carbon monoxide and hydrocyanic acid on red blood cells and tissues, will be found very amusing.

The author has a very modest opinion of his book, recognizing that it is only a general and incomplete survey of the toxicology of insecticides. It is decidedly not a book for the specialist in this field, because it is neither thorough nor critical and contains no original work nor ideas. The author seems to be afraid of mathematics, particularly statistics, as applied to the evaluation of insecticides. The reviewer agrees with the author that the application of statistics has seldom led to fundamental new knowledge, but on the other hand the neglect of statistics, particularly in design of experiments, has often led to false or inadequate conclusions. The reviewer has little use for a book on the toxicology of insecticides that disregards variation in susceptibility of insects and that has little to say about other sources of error and the numerical expression of relative effectiveness or toxicity. Notwithstanding its defects, the reviewer is glad to have this book for the information it gives on scientific and common German names of insecticides and insects, and for the references to the German literature on the testing of insecticides. (Review by Dr. F. L. Campbell.)

Raise Insecticide Duty

The Irish Free State has increased the duty from 20 per cent to 33 1/3 per cent ad valorem on disinfectants, insecticides, verminicides, vermicides, and fungicides.

Bennett In California

D. A. Bennett, president of Albert Verley, Inc., Chicago, is enjoying a belated vacation in California and the Southwest.

Check "Chlorite" Claims

William Omness, trading as Western Michigan Chemical Co., Muskegon, Mich., has just signed a stipulation with the U. S. Federal Trade Commission, agreeing to discontinue advertising that his chemical solution called "Chlorite" is antiseptic, and will cease representing that it is a deodorant and kills bacteria, unless these claims are qualified by assertions that the product will not destroy all odors and will not kill all bacteria, including their spores. Omness also agreed to stop representing that "Chlorite" will disinfect bread boxes, drain pipes, garbage cans, sick room equipment, and other articles, unless directions are given for first thoroughly cleansing the surface to be disinfected and then stirring or rubbing the solution over the entire surface.

Potash-Linseed Soap

(*From Page* 45)

an equal volume of boiling Fehling's solution. The formation of red cuprous oxide indicates the presence of sugar.

F-2i. **Total anhydrous soap.**—Dissolve about 5 g of the sample in 100 to 150 ml of water in a 250 ml Erlenmeyer flask. When solution is complete, add dilute sulphuric acid in slight excess, insert a small funnel in the neck of the flask, and heat the flask at a temperature not exceeding 60° C until the fatty acids separate as a clear layer. Transfer to a separatory funnel, draw off the acid layer into a second separatory funnel, and shake the acid aqueous liquid with two 20 ml portions of ethyl ether. Dissolve the fatty acids in the ether used for washing aqueous liquid and shake with 10 ml portions of water until they are no longer acid to methyl orange indicator. Unite the water portions used for washing and shake in a separatory funnel with 20 ml of ethyl ether, draw off the aqueous layer and wash the ether layer with water until the washings are neutral to methyl orange. Unite the ether solutions (if necessary, filter, washing the paper with ether) in a suitable weighed vessel, rinsing the containers with a little ether and adding the rinsings to the main solution. Add sufficient neutral ethyl alcohol (94 per cent or higher) free from carbon dioxide to give a total volume of 100 to 150 ml, add phenolphthalein indicator and titrate to exact neutrality with standard sodium hydroxide or potassium hydroxide solution, noting the volume required. Evaporate off the alcohol on a steam bath, add a little absolute alcohol and again evaporate to dryness. Moisten with absolute alcohol and dry in an oven to constant weight in an inert atmosphere at a temperature not exceeding 105° C, and calculate the percentage of soap. This soap includes any mineral oil and neutral fat, which, if determined separately, must be deducted from the result to obtain the true soap. If sodium hydroxide solution was used in the titration of the fatty acids, calculate the percentage of anhydrous soda soap and the combined sodium oxide (Na_2O) shown by the titration. In case the sample shows an excess of free acid, proper corrections must be made in calculating the combined alkali in the original soap. (A blank test should be made on the sodium or potassium hydroxide solution fo neutral salts and the proper corrections made if necessary.)

F-2j. **Iodine number (Wijs) of fatty acids. (a) Preparation of fatty acids.**—Dissolve about 50 g of the soap in 300 ml of hot water, transfer to a separatory funnel, add 150 ml of approximately 2**N** H_2SO_4, cool, add 120 ml of ether, shake, draw off the acid layer, and wash the ether layer free from acid with a strong salt (NaCl) solution. Then draw off the aqueous layer as completely as possible, transfer the ether layer to a flask (it is not necessary to transfer quantitatively), add 20 to 30 g of anhydrous sodium sulphate (Na_2SO_4), stopper the flask, shake, and let stand at a temperature below 25° C until the showing that all water has been taken ethereal liquid becomes perfectly clear, up by the sodium sulphate. Filter through a dry paper into another Erlenmeyer flask and completely evaporate off the ether by passing through the flask a current of **dry** air while heating the flask to a temperature not above 50° C.

(b) **Determination.**—Place a small quantity of the fatty acids in a small weighing burette or beaker. Weigh accurately. Transfer by dropping from 0.09 to 0.15 g to a 500-ml bottle having a well-ground glass stopper, or an Erlenmeyer flask having a specially flanged neck for the iodine test. Reweigh the burette or beaker and determine the amount of sample used. Add 10 ml of chloroform. Whirl the bottle to dissolve the sample. Add 10 ml of chloroform to each of two empty bottles like that used for the sample. Add to each bottle 25 ml of the Wijs solution (see Reagents) and let it stand with occasional shakings for 1 hour in a dark place at a temperature of from 21° to 23° C. Add 10 ml of the 15 per cent potassium iodide solution and 100 ml of water and titrate with standard sodium thiosulphate, using starch as indicator. The titration on the two blank tests should agree within 0.1 ml. From the difference between the average of the blank titrations and the titration on the sample, and the iodine value of the thiosulphate solution, calculate the iodine number of the sample tested. (Iodine number is centigrams of iodine to 1 g of sample.)

F-2k. **Potassium and sodium.**—Ignite a 5-g sample of the soap in a platinum dish. Leach the ash with hot water and let the mixture stand on the steambath about 20 minutes. Decant and filter into a 250 ml volumetric flask, but retain as much of the ash as possible in the platinum dish. Repeat the leaching two or three times, each time decanting and filtering into the 250 ml volumetric flask. Wash the dish and paper several times with hot water and catch the washings in the 250 ml flask. Make up the volume to 250 ml and mix well.

Pipet a 50 ml aliquot into a platinum dish, acidify with HC1, and 5 ml HC1 in excess, and evaporate to dryness. Ignite at incipient red heat, cool in a desiccator, and weigh as the mixed sodium and potassium chlorides.

Determine the potassium as K_2PtCl_6 in the usual way, calculate to KC1, and obtain the NaC1 figure from the mixed chlorides by difference. From these values K_2O and Na_2O may be calculated.

F-21. **Solubility and sudsing (lathering power).**—Treat 0.75 to 1.0 g of the soap with 500 ml of distilled water at 15.5° to 20° C (60° to 68° F), stir thoroughly, and note whether the soap dissolved readily. Place 20 ml of this solution (at about 10° to 15.5° C) in a 100 ml glass cylinder, stopper, shake the solution backwards and forwards 20 times in 10 seconds, and let stand a few minutes. A copious lather (suds) should be produced.

F-3. **Reagents.**—

F-3a. **Standard Sodium Hydroxide Solution.**—0.25 **N**, or about 10 g, sodium hydroxide dissolved in water and diluted to 1 liter. Standardize against Bureau of Standards standard acid potassium phthalate.

F-3b. **Standard Sulphuric Acid Solution.**—0.25 **N**, or about 13 g, strong sulphuric acid (specific gravity = 1.84) diluted to 1 liter. Standardize against standard sodium hydroxide solution F-3a.

F-3c. **Sulphuric Acid (Specific Gravity = 1.53).**—Mix 62.5 ml of strong sulphuric acids (specific gravity = 1.84) with 61.5 ml of water.

F-3d. **Methyl Orange Indicator.**—Dissolve 1 g of methyl orange in 1 liter of distilled water.

F-3e. **Phenolphthalein Indicator.**—Dissolve 1 g of pure phenolphthalein in 100 ml of 85 to 95 per cent ethyl alcohol.

F-3f. **Fehling Solution.**—

F-3f (1). **Copper Sulphate Solution.**—Dissolve 34.639 g of copper sulphate ($CuSO_4.5H_2O$) in water and dilute to 500 ml.

F-3f (2) **Alkaline Tartrate Solution.**—Dissolve 173 g of Rochelle salts ($NaKC_4H_4O_6.4H_2O$) and 50 g of sodium hydroxide in waher and dilute to 500 ml. Mix equal volumes of (1) and (2) immediately before use.

F-3g. **Standard Silver Nitrate Solution.**—0.10 N, or about 17 g, or silver nitrate dissolved in water and diluted to 1 liter. Standardize against pure sodium chloride.

F-3h. **Potassium Chromate Solution.**—Dissolve 10 g of chloride-free potassium chromate (K_2CrO_4) in 100 ml of water.

F-3i. **Chlorplatinic Acid.** — A solution containing about 10 per cent of platinum.

F-3j. **Potassium Iodide Solution.**—Dissolve potassium iodide free from iodate in distilled water in the proportion of 150 g of potassium iodide to 1,000 ml of the solution.

F-3k. **Wijis Solution.**—The preparation of the iodine monochloride solution presents no great difficulty, but it should be done with care and accuracy in order to obtain satisfactory results. There shall be in the solution no sensible excess either of iodine or more particularly of chlorine over that required to form the monochloride. This condition is most satisfactorily attained by dissolving in the whole of the acetic acid to be used the requisite quantity of iodine, using gentle heat to assist the solution if it is found necessary. Dissolve iodine in glacial acetic acid that has a melting point of 14.7° to 15° C. and is free from reducing impurities in the proportion so that 13 g. of iodine will be present in 1,000 ml. of solution. Set aside a small portion of this solution while pure, and pass dry chlorine into the remainder until the halogen content of the solution is doubled. Ordinarily it will be found that by passing the chlorine into the main part of the solution until the characteristic color of free iodine has just been discharged there will be a slight excess of chlorine, which is corrected by the addition of the requisite amount of the unchlorinated portion until all free chlorine has been destroyed. A slight excess of iodine does little or no harm, but excess of chlorine must be avoided.

F-3l. **Standard Sodium Thiosulphate Solution.** — Dissolve pure sodium thiosulphate in distiller water that has been well boiled to free it from carbon dioxide, in the proportion of 24.83 g. crystallized sodium thiosulphate to 1,000 ml. of the solution. It is best to let this solution stand for about two weeks before standardizing. Standardize with pure resublimed iodine.* This solution will be approximately decinormal, and it is best to leave it as it is after determining its exact iodine value, rather than to attempt to adjust it to exactly decinormal.

* Treadwell-Hall, Analytical Chem., 2, 6th ed., p. 551.

Preserve in a stock bottle provided with a guard tube filled with soda lime.

F-3m. **Starch Solution.**—Stir up 2 or 3 g of potato starch or 5 g of soluble starch with 100 ml of 1 per cent salicylic acid solution, add 300 to 400 ml of boiling water, boil the mixture until the starch is practically dissolved, and then dilute to 1 liter.

G. Packaging, Packing, and Marking.

G-1. Any special requirements of the individual departments are noted under section H.

G-2. **Packaging.**—Unless otherwise specified, commercial packages are acceptable under this specification.

G-3. **Packing.** — Unless otherwise specified, the subject commodity shall be delivered in standard commercial containers so constructed as to insure acceptance by common or other carriers, for safe transportation, at the lowest rate, to the point of delivery.

G-4. **Marking.** — Unless otherwise specified, shipping containers shall be marked with the name of the material, and the quantity contained therein, as defined by the contract or order under which the shipment is made, the name of the contractor, and the number of the contract or order.

H. Requirements Applicable to Individual Departments.

H-1. The following departmental specifications of the issue in effect on date of invitation for bids shall form a part of this specification:

H-1a. **Army.**—U. S. Army Specification No. 100-2B, Standard Specification for Marking Shipments.

U. S. Army Specification No. 22-42, Supplies, Subsistence, for U. S. Army, Conditions Governing the Purchase of.

H-1b. **Navy.** — Navy Department General Specification for Inspection of Material (copies of which may be obtained without cost upon application to the Bureau of Supplies and Accounts, Navy Department, Washington, D. C.

H-1c. **Marine Corps.**—Instructions issued by the Quartermaster.

I. Notes.

I-1. **Basis of Purchase.**—Soft soap should be purchased by net weight.

I-2. Bidder should state size and weight of unit.

I-3. Purchasers should specify if a mutually agreed upon sample is desired for comparison with deliveries for color or odor. (See paragraphs E-1b, E-1c, and F-1c.)

I-4. The inspector or purchasing officer should determine whether or not the material is satisfactory as regards color and odor. If unsatisfactory the material should be rejected and not submitted to the testing laboratory for the tests given under Section F-2. (See paragraphs E-1b, E-1c, and F-1c.)

I-5. It is believed that this specification adequately describes the characteristics necessary to secure the desired material, and that normally no samples will be necessary prior to award to determine compliance with this specification. If, for any particular purpose, samples with bids are necessary, they should be specifically asked for in the invitation for bids, and the particular purpose to be served by the bid samples should be definitely stated, the specification to apply in all other respects.

1-6. An Index of Federal Specifications may be purchased as noted in the paragraph next below, price 10 cents.

I-7. Copies of this specification may be obtained upon application, accompanied by money order or coupon, or cash, to Superintendent of Documents, Government Printing Office, Washington, D. C.; price —— cents.

Notice: When Government drawings, specifications, or other data are used for any Government procurement operation, the United States Government thereby incurs no responsibility nor any obligation whatsoever; and the fact that the Government may have formulated, furnished, or in any way supplied the said drawings, specifications, or other data is not to be regarded by implication or otherwise as in any manner licensing the holder or any other person or corporation, or conveying any rights or permission to manufacture, use, or sell any patented invention that may in any way be related thereto.